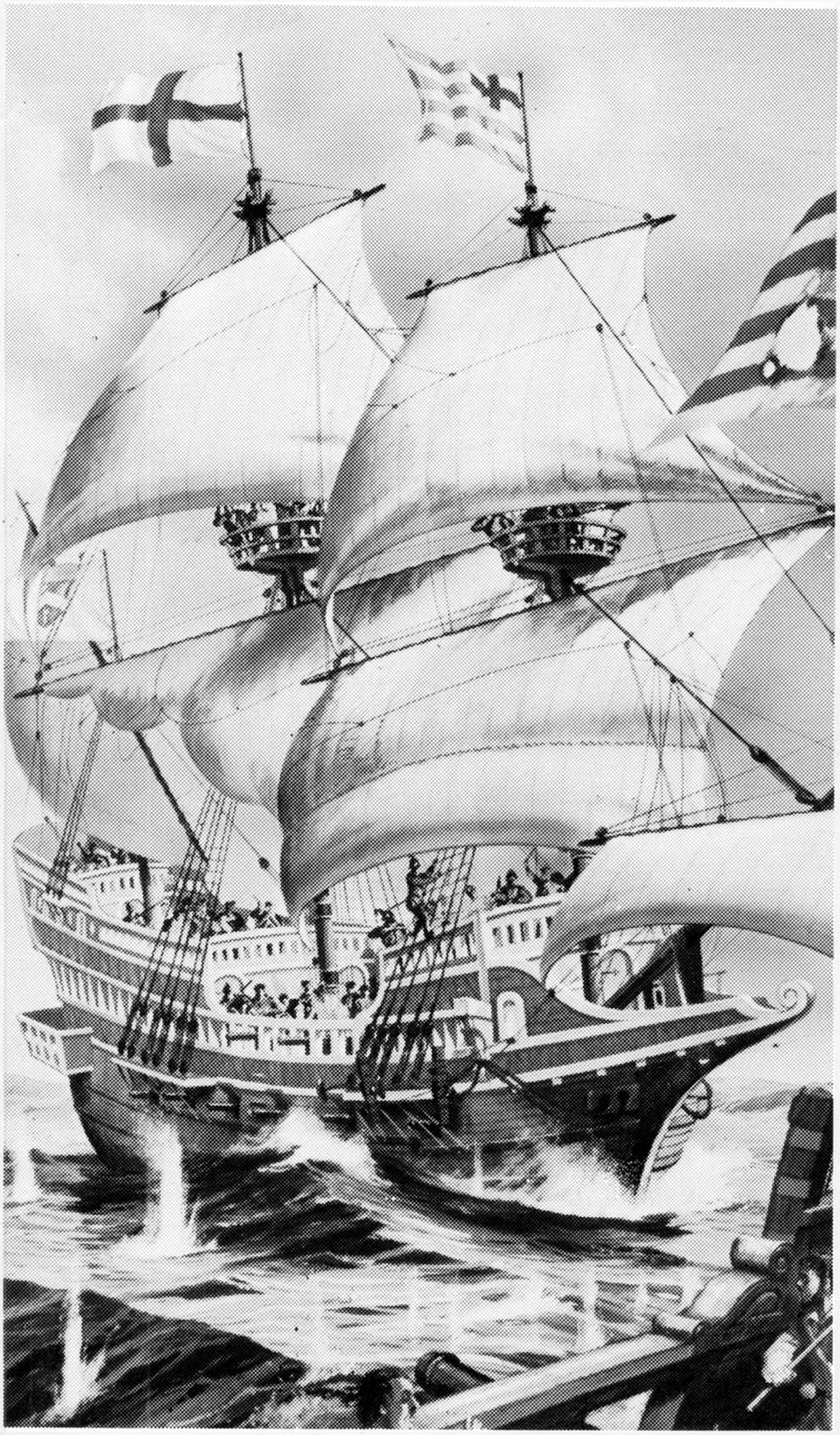
MECCANO MAGAZINE

VOL. 63 No. 2
1978 APRIL £1



TODAY'S MECCANO - FULL REPORT ON PAGE 60

Queen Elizabeth's most treasured ship.



After circumnavigating the world, the Golden Hind returned to Plymouth in September 1580, laden with 30 tons of treasure. The value of the gold, silver and emeralds exceeded the yearly income of the English crown.

Francis Drake had sacked and taken numerous Spanish ports and ships. He was knighted and the Golden Hind became England's most treasured ship.

The Airfix kit of the Golden Hind incorporates most of its' authentic features, thanks to the facts revealed in original documents.

The Airfix model has four deck cannons, fourteen saker five-pounder guns, and the fine detail on the four three-pounder falcons can be seen clearly.

Moulded detail includes the hatches, deck planking and, on the rear, the famous 'Hind' engraving. Full rigging diagrams are included and four anchors of the time are supplied.

On deck, crew members in period costume are depicted about their duties and the figure of Drake stands on the after deck.

All these details and many more are incorporated in the Airfix Kit which, due to painstaking research, is believed to be the most accurate model obtainable of this famous ship.

AIRFIX

MECCANO MAGAZINE

Vol. 63, No. 2 April 1978.

ON THE COVER: Today's Meccano. A selection of some of the new Meccano Sets with, in the foreground, a sample outfit model from each of the five Standard Sets now available. There's a Motor Cycle and Sidecar from the No. 1 Set; an Excavator from the No. 2 Set; a Stock Car from the No. 3 Set; a Sewing Machine from the No. 4 Set and a Stacker Truck from the No. 5 Set. Please note, however, that the contents of the new Sets bear no relationship to the contents of similarly-numbered old Sets. The Meccano system has been totally revised this year and a full report on the new range is given in the middle of this issue.

EDITOR – CHRIS JELLEY

I begin this issue with an important announcement – and an apology.

When Meccano Limited resumed responsibility for the MM, we agreed to honour all existing subscriptions and, at the same time, we promised to extend the subscriptions by two issues, this because only two editions of the Magazine had been published in 1977. No sooner had we made the promise, however, than in January we appeared to go back on it by advising many readers still with the two 'extended' issues to run that their subscriptions were due!

This, in fact, was an unfortunate error by our circulation agency and recipients of the last renewal reminder will of course receive their promised Magazines whether or not they renew their subscriptions.

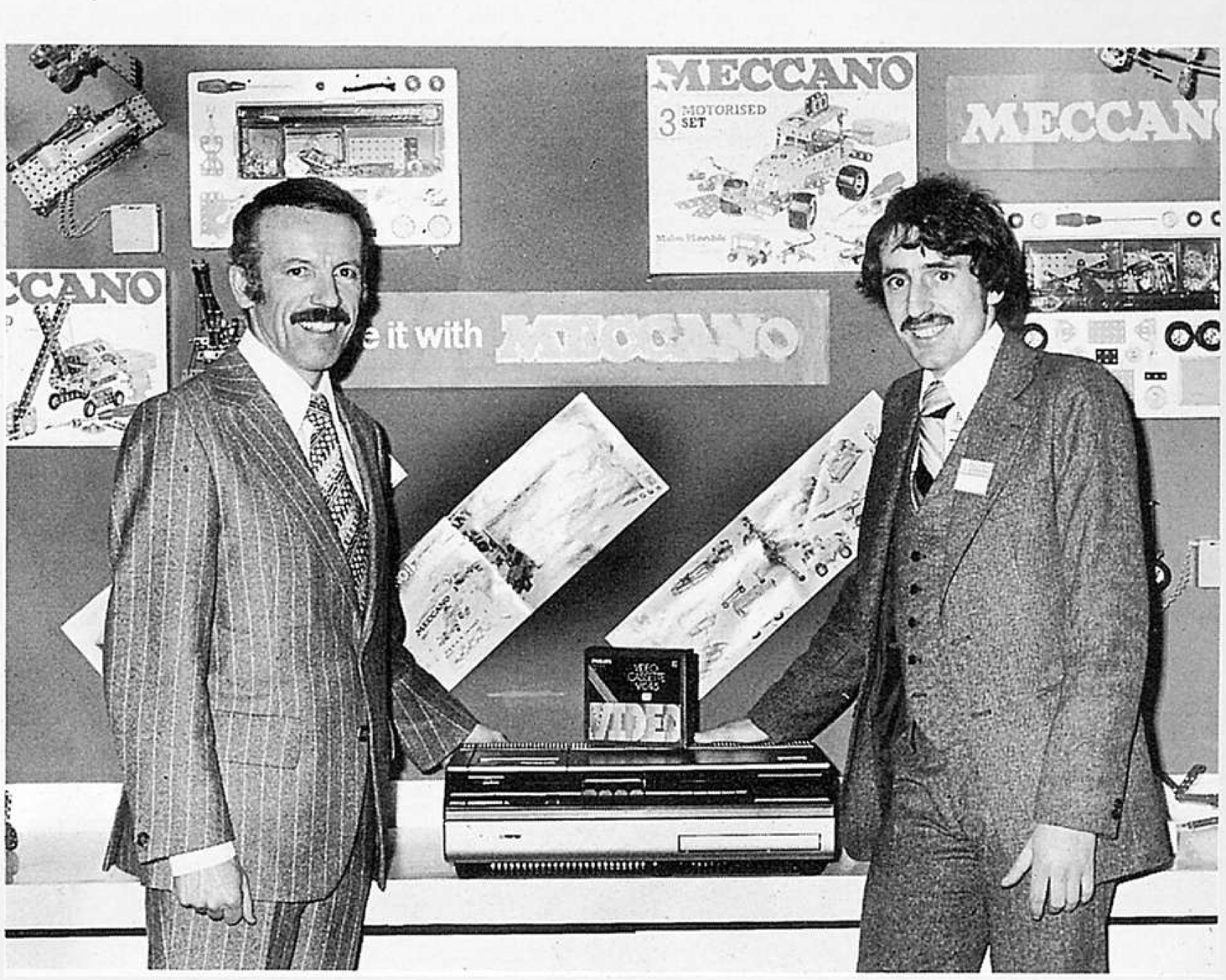
Actually, many of the readers concerned did renew immediately they received the reminder, without even taking us to task for the error. These subscriptions we are delighted to accept, but to ensure that justice is done, we have entered them for six issues, including this one, instead of the usual four issues of a normal annual subscription. However, I should warn the readers involved that, because of the computer programme already in existence, they may receive another reminder with their July issue (this being the issue with which their subscriptions *should* have expired). This reminder should be ignored.

Even now, though, the story is not quite ended. By sending the January reminder to the wrong batch of subscribers, we missed notifying those readers whose subscriptions *had* expired with the January issue. We are therefore circulating reminders to the latter with this Magazine and we hope we can count on their support.

EXHIBITIONS AHEAD

This brings me nicely to another item which I present as nothing short of an exhortation: support your local Club Exhibition! Every assistance is valuable, no matter how small, and if you are not in a position to be an exhibitor, at least try to get along to visit the show. Unfortunately this Magazine will be out too late for me to give advanced notice of April events, but on May 13th the Solent MC are having an Exhibition in the Wesley Central Hall, Fratton, Portsmouth, and the Pennine MG Show will be held in Huddersfield Town Hall on 27th May. Two other big events to keep in mind are the Midlands MG's Exhibition at the Town and Country Festival, Stoneleigh over the Summer Bank Holiday (26th–28th August) and, of course, the giant Henley Exhibition on 1st and 2nd September.

Finally, for those readers who collect Dinky Toys, I regret that there is no new model news this issue. This is simply because, at the time of writing, no new Dinky Toys have been introduced since the last MM, the first quarter of any year being very quiet for toy sales generally. However, I personally know that several new introductions are fast nearing completion, so 'Dinky Toys News' will be back again next issue.



Pictured on the Meccano Stand at the British Toy Fair in January, Meccano Window Game winner Mr. Philip Somers receives his first prize of £700 worth of the latest Philips television video tape recording equipment from Company Managing Director, Mr. George Flynn. The 'Window Game', a Dealer display competition, is organised annually by Meccano Limited and attracts many hundreds of entrants from all over the Country. It serves as a valuable way of promoting our products in the vital pre-Christmas selling period, Dealers being required to mount an eye-catching display of our goods in their window during this period. For judging, the Country is split into our various sales areas and, this time, ten area winners each received a fashionable portable television set as their prize. Messrs. Oliver Somers of Mesnes Street, Wigan, was selected as national winner from the area winners and Mr. Philip Somers, a partner in the Firm and organiser of the winning entry, was invited by Meccano to the Toy Fair, held at the National Exhibition Centre in Birmingham, to receive his prize.

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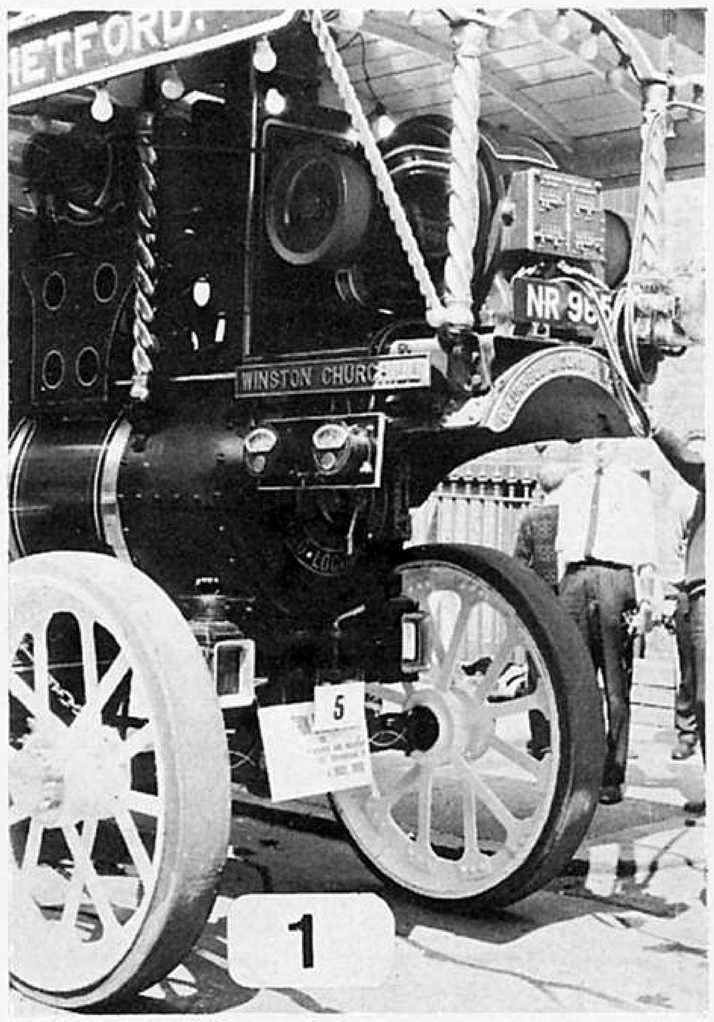
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Modelling Showmen's Engines and Traction Engines in Meccano has now reached a very advanced form as the various Meccano Shows up and down the U.K. have proved in recent years, and the high standards achieved have been obtained by painstaking detail reproduced in standard Meccano parts and by close study of the correct proportions of the prototype on which the particular model is based. When a "glamour" shot of a real life showman's engine is taken, it is often done so from the view which clearly shows its front end, often because this is where detail and ornamentation proliferate as Fig. 1 illustrates. Winston Churchill is a Burrell compound Showman's Engine still taking pride of place at many a Steam Rally and such engines are favourites for Meccano modelling. However, choice of parts is very important and the selection of the Circular Girder or Hub Disc both for front wheels and for boiler dimensions is bound to get the proportions wrong immediately. It is quite obvious in the case of the Burrell, looking at Figs. 1 and 2, that wheel diameter and boiler diameter are quite different.

If the smaller scale of modelling is adopted as in Figs. 5 and 6, then the 3" Spoked Wheel and the Meccano Boiler do give a reasonable proportion, but if the front wheels are based on a 5½" diameter, then the boiler must be reduced in diameter to compensate and the illustrations in Figs. 7 and 8 show excellent results by advanced model-builders in getting the proportions right. We must be careful not to be too pedantic about proportions because they vary according to maker and as to whether an agricultural machine or a road locomotive is being modelled.

Constructors who want the best take the trouble to write to the makers, or to study published works giving full dimensions (and often detailed drawings) of the prototype they wish to model. They then do some careful paperwork to scale down the original.

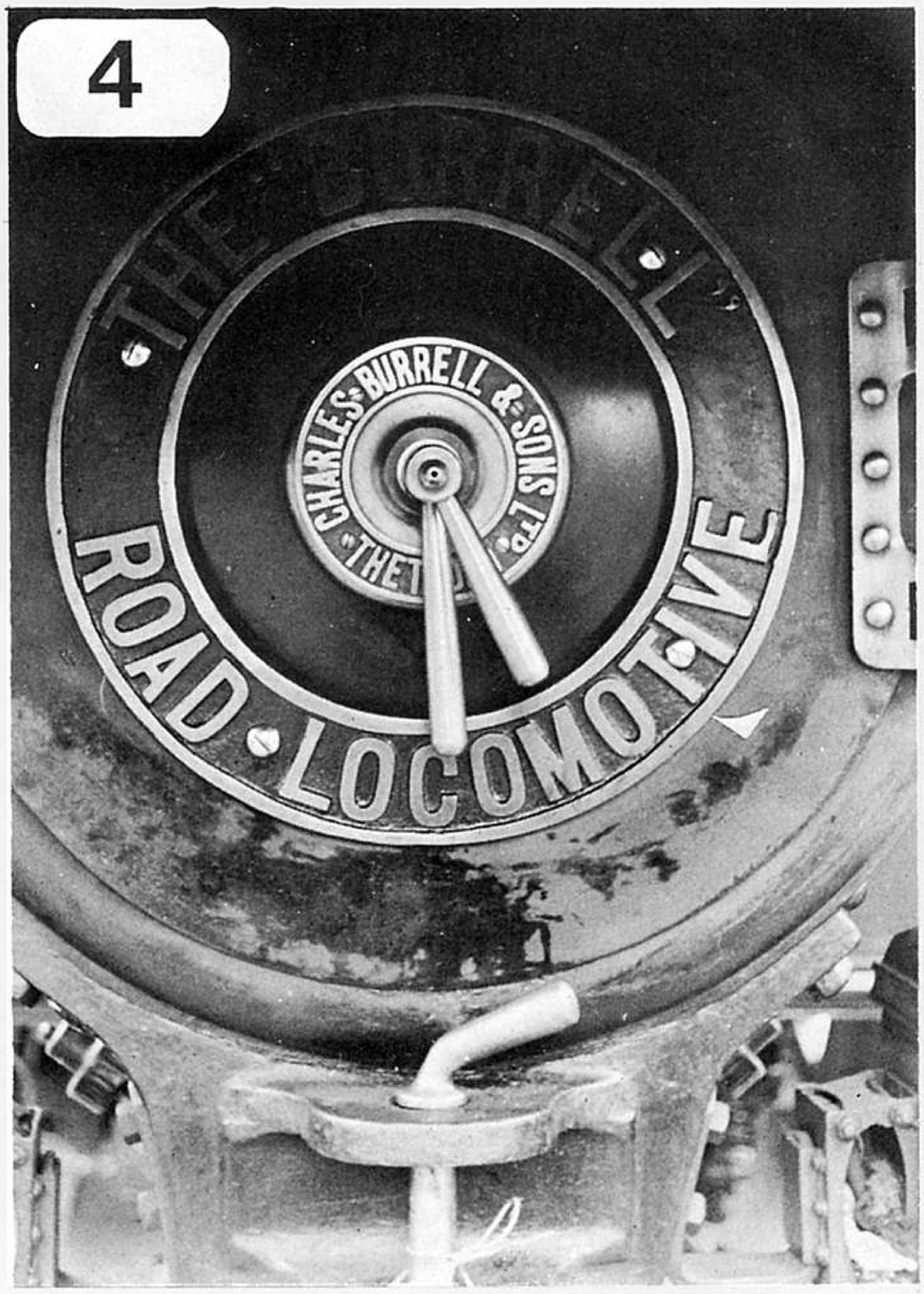


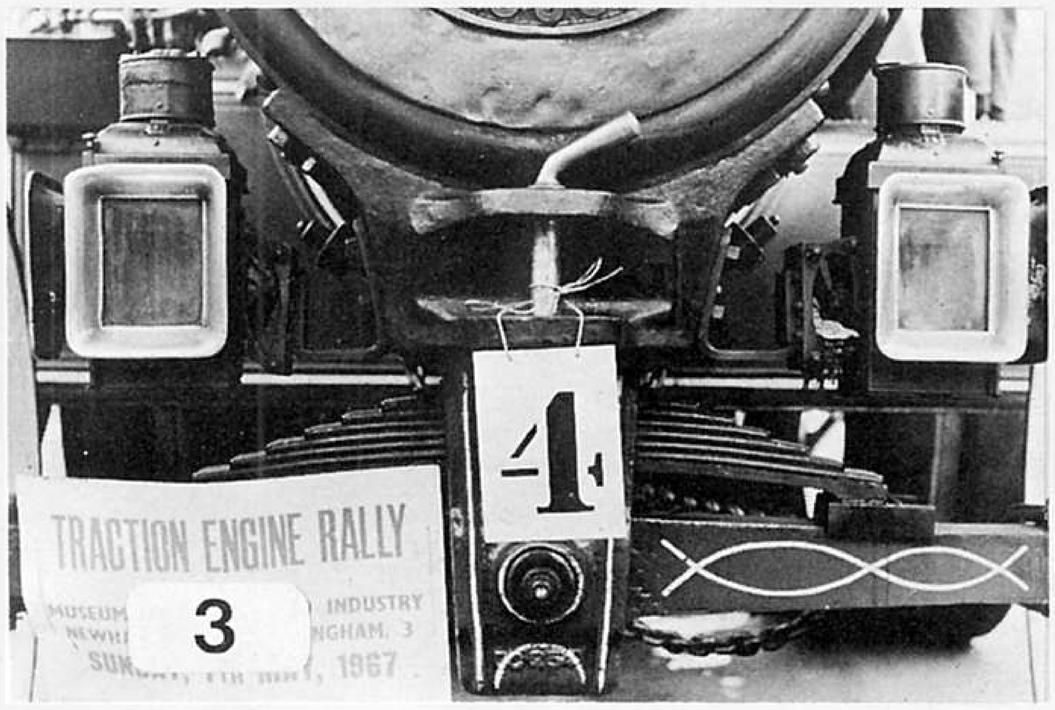
If a standard Meccano part does happen to scale in correctly and has acceptable internal proportions of its own, i.e. flange depths, etc., then all well and good, but where this does not apply, the patient enthusiast simply builds up the required part to correct scale. This often involves a high degree of skill, imagination and patience on the part of the model builder if he is to achieve the results shown by the standards of Figs. 7 and 8. Indeed, Fig. 8 shows a front wheel construction for a Burrell compound Road Locomotive in which everything is built up from Narrow Strips, Curved Strips, Wheel Discs and gently curved Flat Girders.

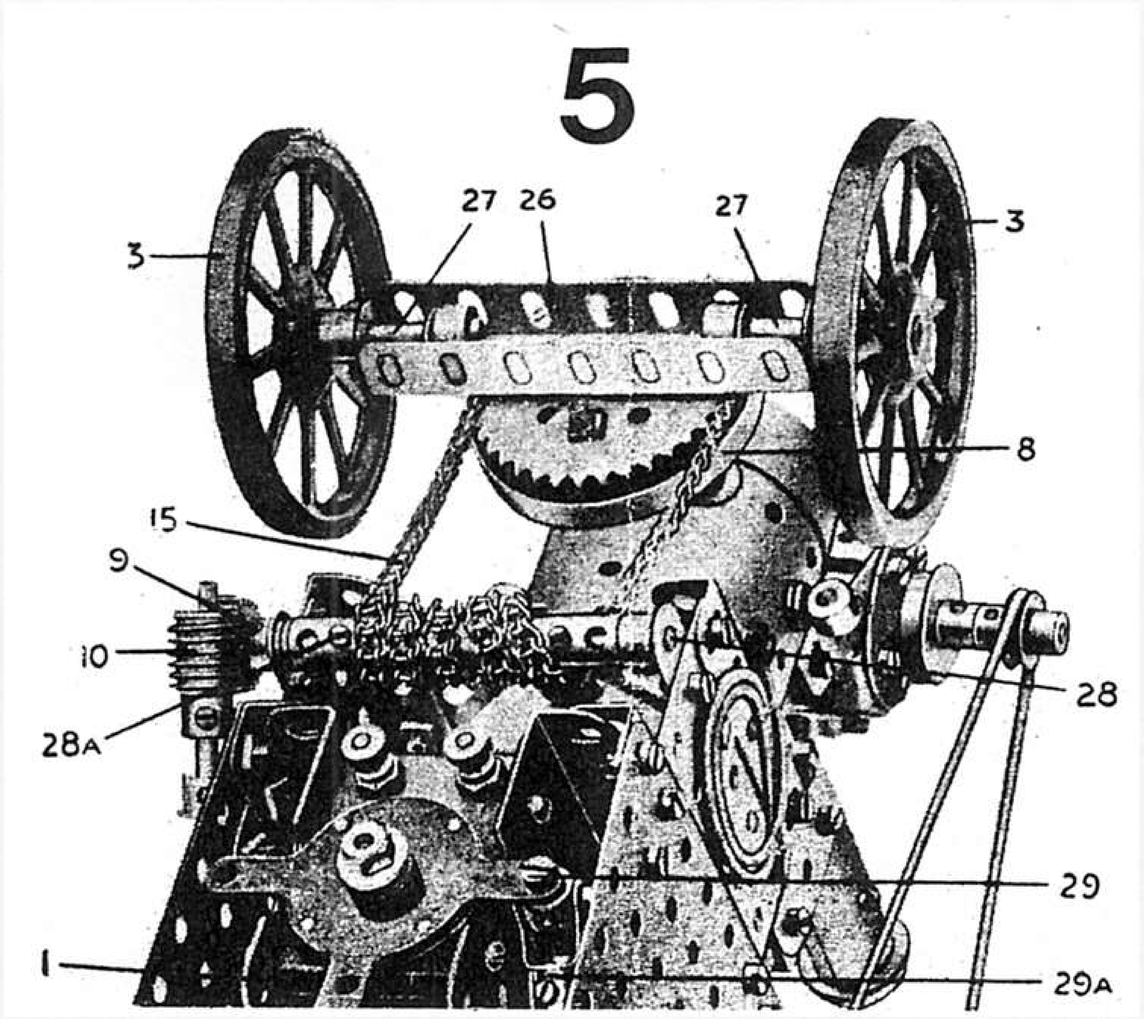
In this second article on traction engine modelling COLIN HAMILTON looks at ...

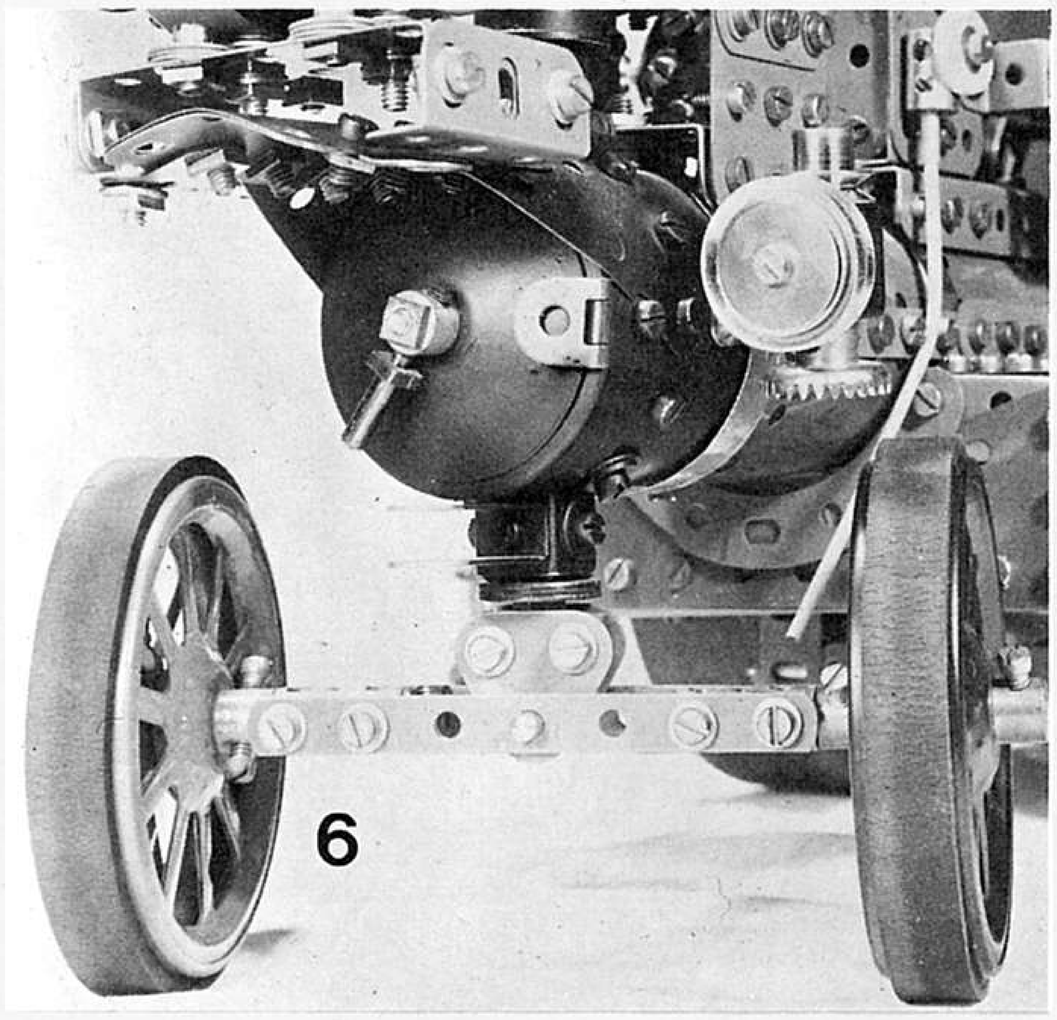
FRONT ENDS ON SHOWMAN'S ENGINES





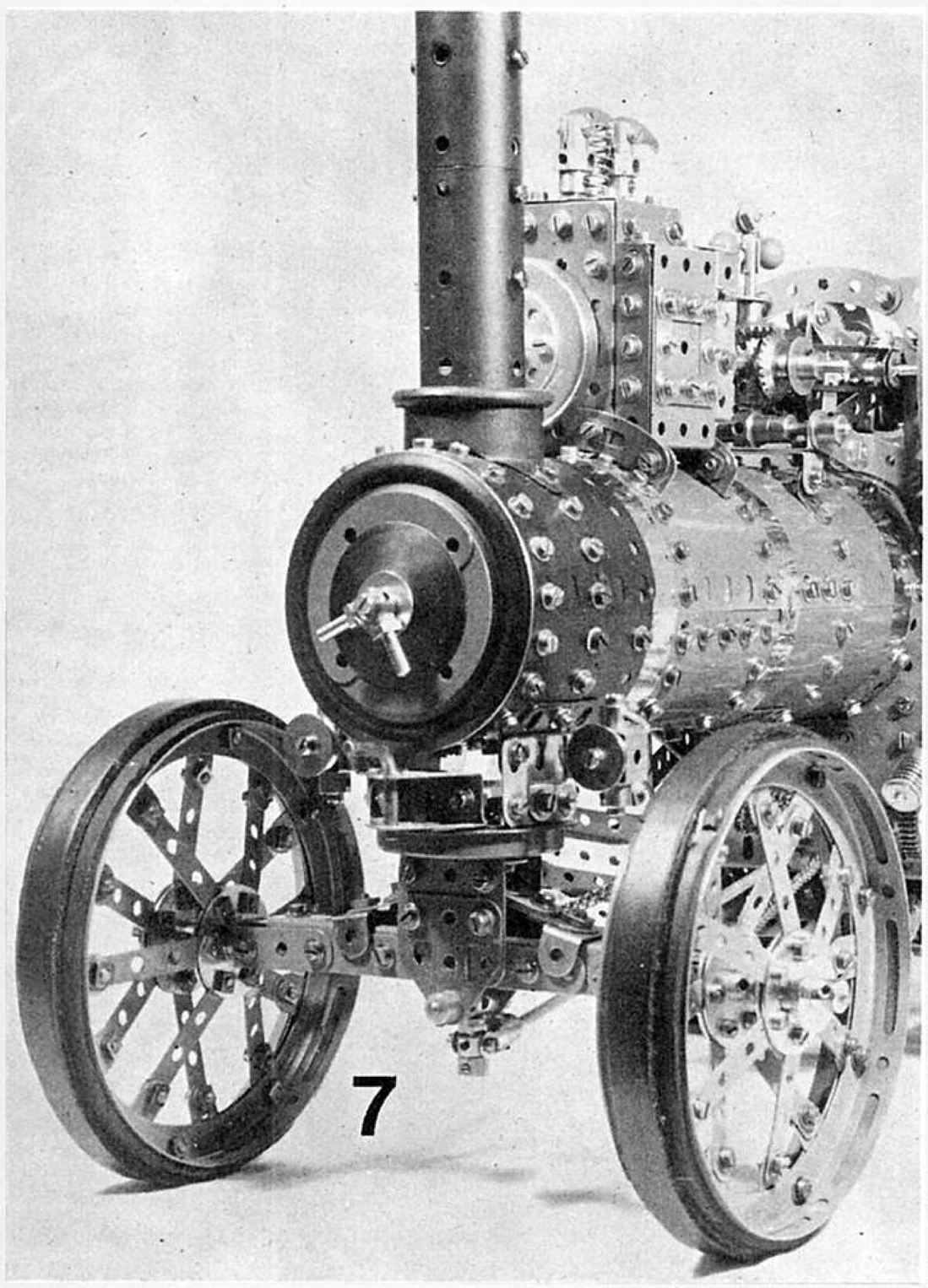


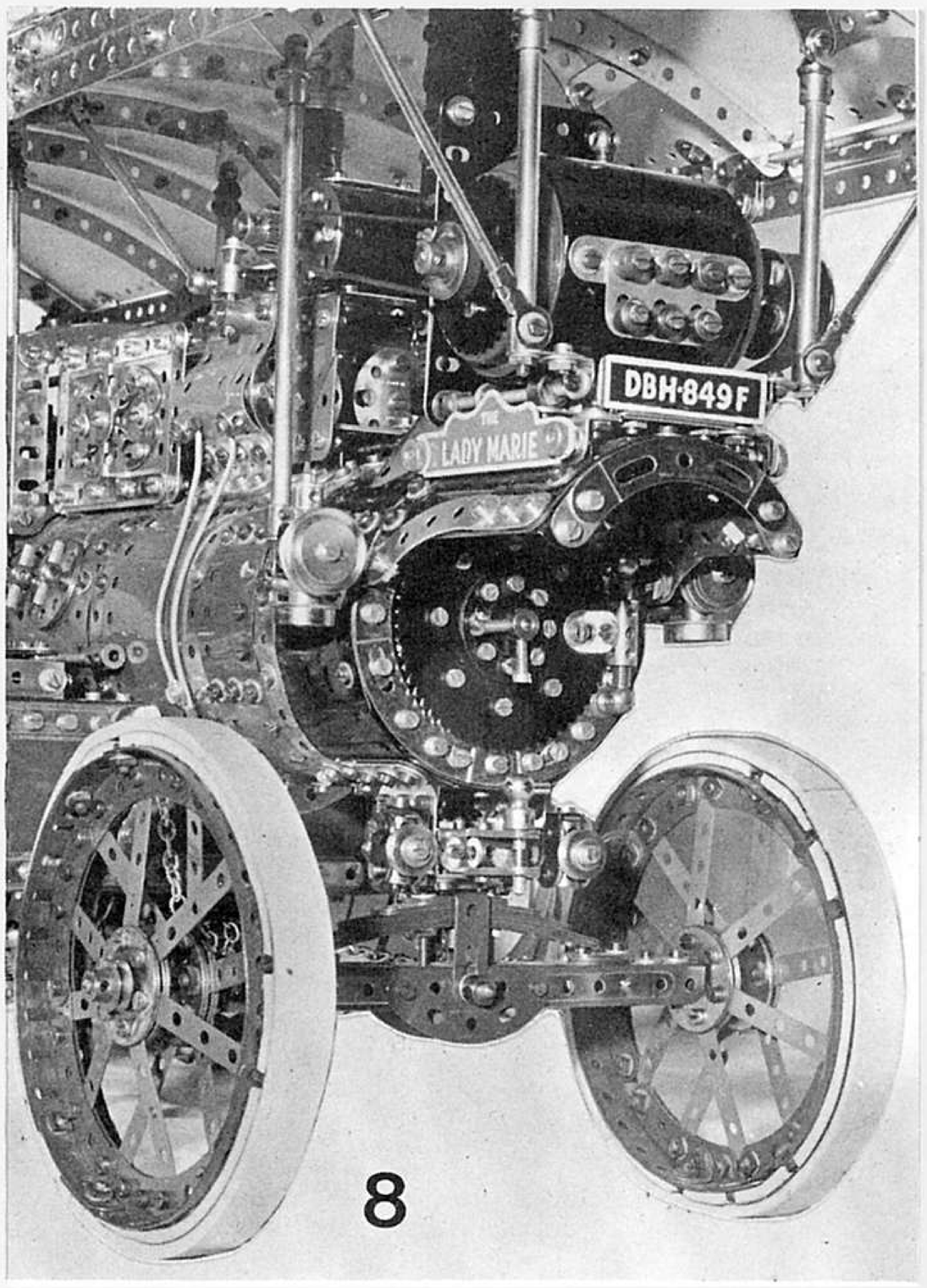




A well-loved, but badly proportioned pre-War design of Meccano Traction Engine has its steering gear shown from below in Fig. 5. The 2" Sprocket Wheel bolted solidly to a Wheel Flange give a rigid vertical steering pivot allowing no 'float' for the front axle when negotiating uneven ground. Some constructors have emulated this design and even incorporated Meccano Ball Bearings in a complicated steering swivel. Scaled up, such ball bearings would be as big as tennis balls! Essentially, traction engines or road locomotives have a simple front beam axle on a simple, but universal, central pivot. This is clearly shown in Figs. 6, 7 and 8. These last two illustrations show how the job can be tackled in Meccano parts. In the case of Fig. 7, the model of an agricultural traction engine, the axle beam is braced from below by a strut running back to the steering base and the necessary sideways deflection of the axle is catered for in the swivel design shown. Fig. 3 makes it clear that the Burrell Showman's Engine is provided with a sprung front axle and this is reproduced by the modeller in Fig. 8 from standard parts. In this case provision is made for a vertical rise and fall of the axle as the spring flexes.

As in railway steam locomotives, the smoke box needs cleaning and an access door is required, as the close-up of the Burrell's front shows in Fig. 4. It is interesting to compare how two different advanced model-builders have tackled the reproduction in Figs. 7 and 8. Again, prototype makers are different for the two models and so is their work purpose and the boiler/wheel diameter ratio is not the same. These differences have been catered for in both models. A careful study of the illustrations in this article should help the enthusiast to discover the forms and details of the prototypes and some of the building techniques required to obtain realism in a Meccano model. A wealth of details abound on models and prototypes alike, but these will be dealt with separately in a later article.





AMONG THE MODEL-BUILDERS



with 'Spanner'

NON-STANDARD PIVOT POINT

As an example of how discussions between Meccanomen can result in useful ideas, Bert Halliday of London was recently chatting with Adrian Ashford on methods of getting a Strip to pivot on a point centrally situated between two standard holes. Adrian mentioned the use of a 1" Triangular Plate bolted to the standard holes, but it was noted that this put the pivot hole on a different plane, which is not always desirable. The use of a Coupling was also mentioned, this being on the same plane, but the part is somewhat bulky and room may not always be available.

Bert put his mind to work and, as he says himself, "Eventually, I thought of the enclosed arrangement as a less-bulky alternative. It also has the property of fixing the pivot point on the same plane as the holes in the supporting Strip or Angle Girder, and with virtually no "backlash", so should serve well as a method of supporting brake arms if required in such a position on a large-scale steam locomotive, or similar model. The Key Bolt provides a neat, compact pivot and, viewing the arrangement from one side at least, it looks as though there's nothing actually supporting the pivoted Strip".

Bert supplied us with the accompanying diagram, together with the following descriptive notes which include an alternative pivot bolt if a Key Bolt is not available.

"As the main bolts to be used," writes Bert, "have to accept two Nuts and two Thin Washers apart from being inserted through two Strips, it is best to look for the longest possible standard Bolts, or use 3/8" Bolts in place of these. Fit a long-as-possible standard Bolt into each extreme end hole of a 2" Strip (the current type with the centre hole) and secure each Bolt by a Nut with two Electrical Thin Washers beneath them. Insert a Key Bolt in the appropriate hole of the Strip to be pivoted, keeping the head of the Bolt on the same side of the 2" Strip as the Nuts, press the Key Bolt through the centre hole of the 2" Strip, then secure this arrangement by two further Nuts to whatever Strip or Angle Girder is providing the supporting framework. The pressure of the head of the Key Bolt against this component is sufficient to retain the Bolt in place.

"An alternative pivot bolt is a long standard Bolt held shank inwards in the centre hole of the 2" Strip by two Nuts, with the pivoting Strip "suspended" on the projecting portion of the Bolt's shank, this also giving an alternative lateral position to the Strip. Using this system, the bolthead projects further than the Key Bolt arrangement, but it is still reasonably compact."

COUNTING DEVICE

A prolific designer, in fact, Bert Halliday has also provided details of what he describes as "A Universal Revolution Indicator, or Counting Device". The Device is shown in the accompanying diagram and Bert's instructions for use are as follows:

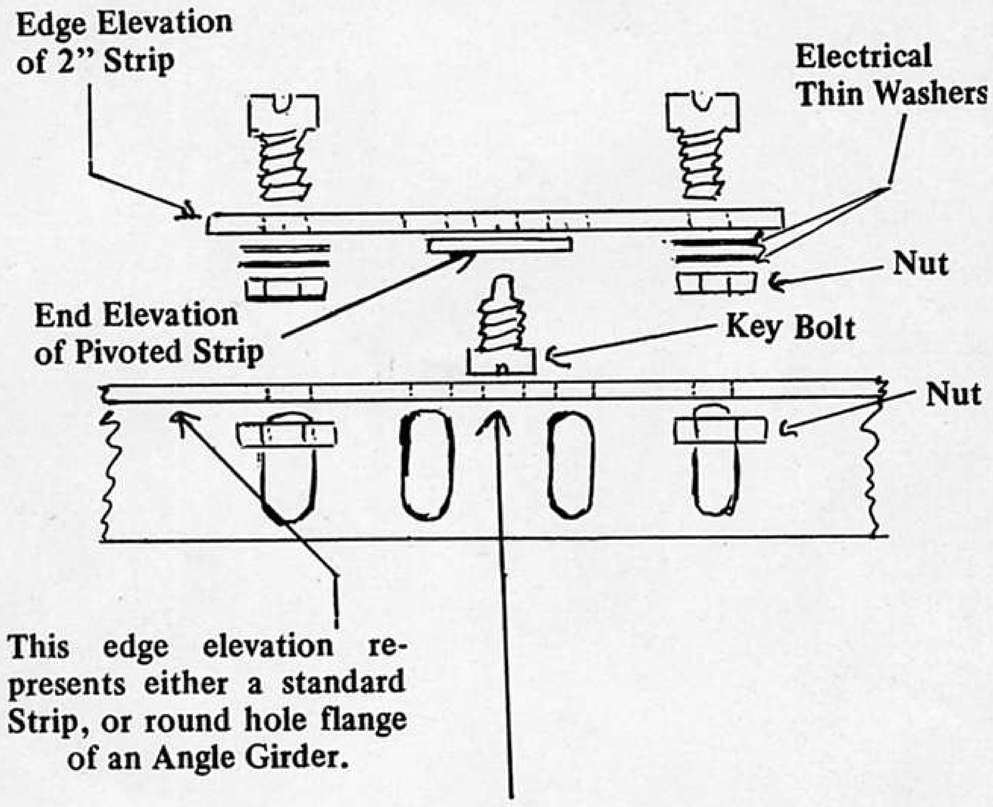
"First," writes Bert "arrange a 1:1 ratio take-off drive from the driven Rod of the unit to be checked and, to the take-off Rod, fit a Worm so that it meshes with a 57-t Gear Wheel. Assuming the latter is fitted to a vertical Rod, fit it boss downwards, and it is quite sufficient for the vertical Rod to just "sit" in its supports without any securing device such as Collars, regardless of the direction in which the Worm rotates.

"Next, cut a disc of stout card (or, better still, one from a light coloured floor tile) to the size of a wheel disc. Punch out a central hole in the card disc, and also a hole matching one of the holes in the face of the Wheel Disc. Position the cut-out disc by its central hole over the Rod carrying the 57-t Gear and align the outer punched hole so that it is *exactly* diametrically opposite the point of a tooth on the 57-t Gear and also lines up with an outer hole in the Gear Wheel. This positioning is critical. Bolt the cut-out disc to the Gear Wheel, fitting an Electrical Thin Washer between the disc and Gear to allow for the latter's boss, then draw a line from the centre of this arrangement to the centre of the chosen tooth. As this line will be used as the intial guide at all times, it is best to give it a "broad arrow" form to prevent confusion with other indicating lines later added to the cut-out disc.

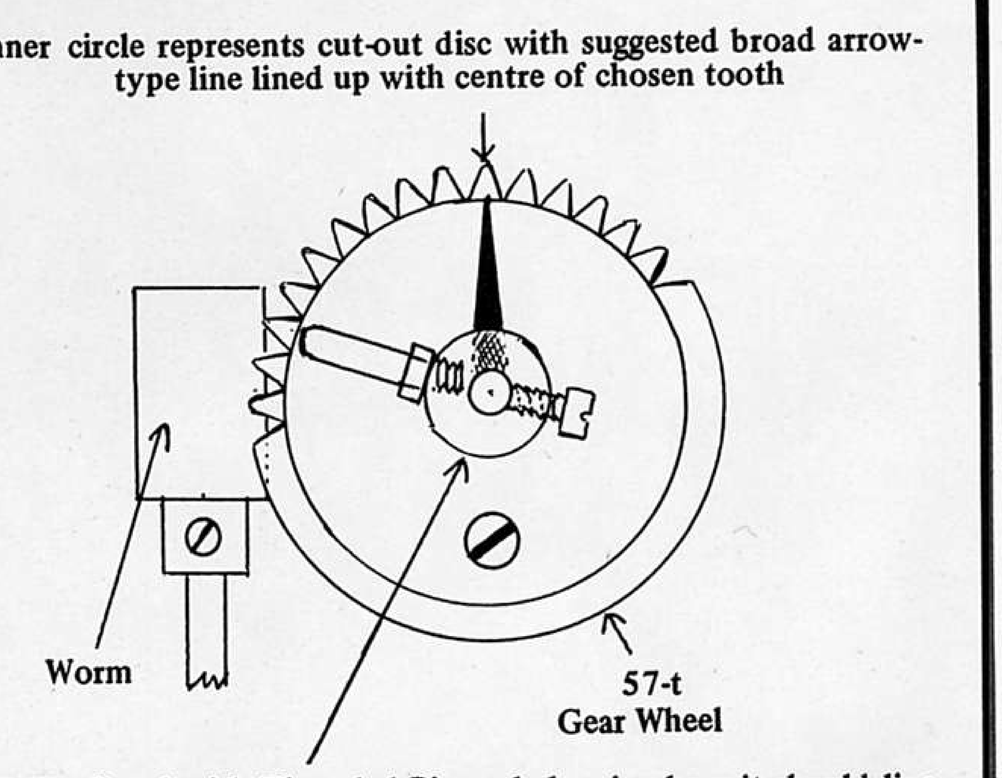
"Screw a Threaded Pin into a Collar and lock the Pin by a Nut so that the Collar is not locked by this Pin, but can be locked by a separate Grub or Set Screw to the Rod carrying the 57-t Gear, to which it should be fitted. Space the Collar upwards by Washers so that the Threaded Pin clears the Worm.

"With the vertical Rod "free" in its supports, it can be lifted and turned so that the main indicating line on the disc either lines up exactly due "North", or with a fixed indicator adjacent to the Gear Wheel, then dropped back into place so that the Gear Wheel again meshes

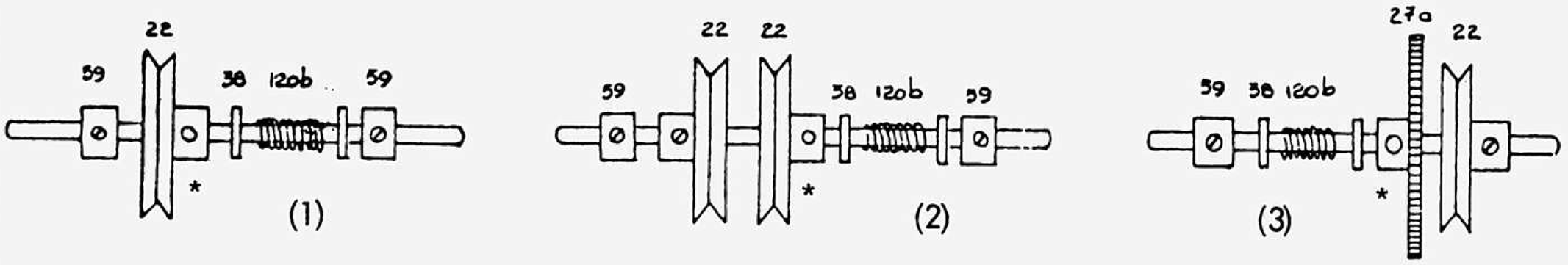
Diagrams illustrating two suggestions from that prolific designer, Mr. Bert Halliday of London. On the left is the "Flat" method of pivoting a standard or Narrow Strip *between* two standard holes. On the right is a Universal Revolution Indicator, or Counting Device, which can be used in various ways.



The arrangement also "tucks in" quite well to the inside of this flange of an Angle Girder.



Collar fitted with Threaded Pin and showing how it should line up with the fiftieth tooth on the 57-t Gear Wheel if this is the number of revs. to be indicated. Threaded Pin drawn a little "short" for clarity purposes



Diagrams showing a variety of different Slipping and Sliding Clutch Mechanisms designed by Dr. Jorge Catella of Buenos Aires, Argentina. However, we are also indebted to Bert Love for providing the English script below and the annotations on the illustrations.

with the Worm. Now, if you want to indicate, for example, 50 revolutions, swivel the Collar to allow the Threaded Pin to line up with the *point* of the fiftieth tooth on the Gear Wheel and lock the Collar into place. Thus, after fifty revolutions of the main unit in your model, it will be found that the Threaded Pin points exactly due "North", or lines up precisely with the arranged indicator.

"This will always happen regardless of the number of revolutions the Threaded Pin is set to indicate – providing, as things are described here, this number is 57, or less. But if the main unit is to revolve *more* then 57 revs., deduct this number from the number of revs. desired; swivel the Collar in the *opposite* direction to, say, tooth 13 if 70 revs. are to be indicated; *ignore* the Threaded Pin's *first* trip past "North" or the fixed indicator, and the Pin's *second* encounter will indicate the correct number of revolutions. Of course, the unit can be modified to embrace the larger Meccano Gear Wheels if much higher number of revolutions prevail, but for general compactness, the 57-t Gear can be sent round for as many times as the multiple of its 57 teeth embrace the revolutions total."

"All this applies to when the number of revolutions is already known, and a check is required to indicate when this known number has been reached. But the unit will also work in reverse and indicate the number of revs. the main unit has taken if this number is not known. Simply set the main indicating line on the disc as usual, when the main unit is stopped, say when the 57-t Gear has completed about half a complete revolution, count round the gear wheel from the main indicating line to the tooth lined-up with "North", or with the fixed indicator. This will give an exact notification of the revolutions taken. Other, finer, lines can be drawn on the cut-out disc, possibly in different colours to indicate five or ten-tooth spacing, and for easier checking."

CLUTCH MECHANISMS

Motiving on, our old friend Bert Love from Birmingham writes to say that Doctor Jorge Catella is one of several first-class modellers in Argentina who is noted for finely-detailed models and mechanisms. Jorge has supplied some interesting Clutch designs and we feature them here, with notes and script being provided by Bert himself.

Mention of the word "Clutch" (writes Bert) brings the motor car to mind, but there are many cases in Meccano modelling where other applications are required. For example, a rotating fairground model may have sufficient dead weight or inertia, to place quite a strain on axle rods, driving gear and the motor, so if we can deliberately arrange for a slipping drive to pick up the rotation gradually, the strains are relieved in the process. An added advantage is that on switching off the drive, the momentum of the rotating model allows the action to continue without over-driving the motor. A simpler case is that of the minute hand of a clock which requires re-setting without disengaging the shaft from the main gear train of the clock. A slipping clutch provides the answer.

Fig. 1 illustrates a simple case where only a light take-up grip is required, in which case a freely turning 1" Pulley is pressed against a Collar by a Compression Spring between two Washers, the required pressure being obtained by setting-in the right-hand Collar. External drive would be taken to the 1" Pulley. It should be noted that, in this and all the illustrations, the component marked with an asterisk (and showing an empty Grub Screw hole) is free to revolve on the shaft.

Fig. 2 shows a very similar design to Fig. 1, but this time a second (and fixed) 1" Pulley offers a greater contact circumference, but both of these simple clutches can be made from common standard parts. If an external gear drive is required, then the design of Fig. 3 may be used and, as the 57-t Gear Wheel, Part No. 27a, will be running in contact with the rim of the fixed 1" Pulley, a standard Pinion, or even the edge of a second 27a, will mesh quite happily. This latter arrangement is quite suitable for the minute hand of a Clock.

In Fig. 5, a Bush Wheel acts as the slipping clutch plate, but as both the Bush Wheel and Gear 27a have slightly raised portions on their bosses, the overhanging boltheads set into the Bush Wheel will bridge the gap. Should a smaller gear wheel be required, then the clutch in Fig. 6 shows how the standard Bevel Gear and 1" Gear Wheel may be employed. Even a rubber-shod friction drive is perfectly acceptable, as shown in Fig. 7, where an external 1" Pulley with Tyre can be used to make the contact. In fact, an unorthodox, but quite effective "gear" drive can be made by setting a Pinion to bear against a Tyre on a 3" Pulley which provides a virtual 4" diameter "gear" of very acceptable performance – so long as the gear ratio is immaterial!

In clutch circumstances there are occasions when the take-up of the drive must be quite →

AMONG THE MODEL-BUILDERS

(Continued from Previous Page)

positive and this is known as a "snatch" clutch. Such a design is shown in Fig. 8, which requires a little explanation. The 57-t Gear 27a, Socket Coupling 171 and the first part of the Dog Clutch 144 are locked together by Grub Screws set into the Socket Coupling, although the whole composite unit must be free to revolve on the shaft with sufficient travel in the Compression Spring to allow the Dog Clutch to disengage by means of parallel Axle Rods set in a Coupling to engage in the waste of the Socket Coupling.

If constructors find those designs objectionable, where metal rubs metal, then the design of Fig. 9 may be used. In this, a loose rubber tyred 1" Pulley with boss picks up the drive from the 57-t Gear Wheel via a standard Bolt-shank engaging the tip of a 3/8" Bolt locknutted into the Pulley boss.

SYNCHRONOUS ELECTRIC MOTOR

Mike Cotterill of Skegness, Lincolnshire is a modeller who I particularly remember for a superb model of the Skegness Lifeboat and its Towing Tractor which I saw at the Henley Exhibition a couple of years ago. However, lifeboats are not his only forte; among many other models, he has built some interesting and accurate Clocks, to power which he designed an interesting Synchronous Electric Motor which has proved very successful in operation. The advantage of such a motor for clocks is that it runs at a very steady speed, the main rotor turning at 750 rpm which is 'synchronous' with Alternating Current. The accompanying photographs show two of Mike's Clocks using the motor, and the general layout of the motor itself is given in the accompanying diagram.

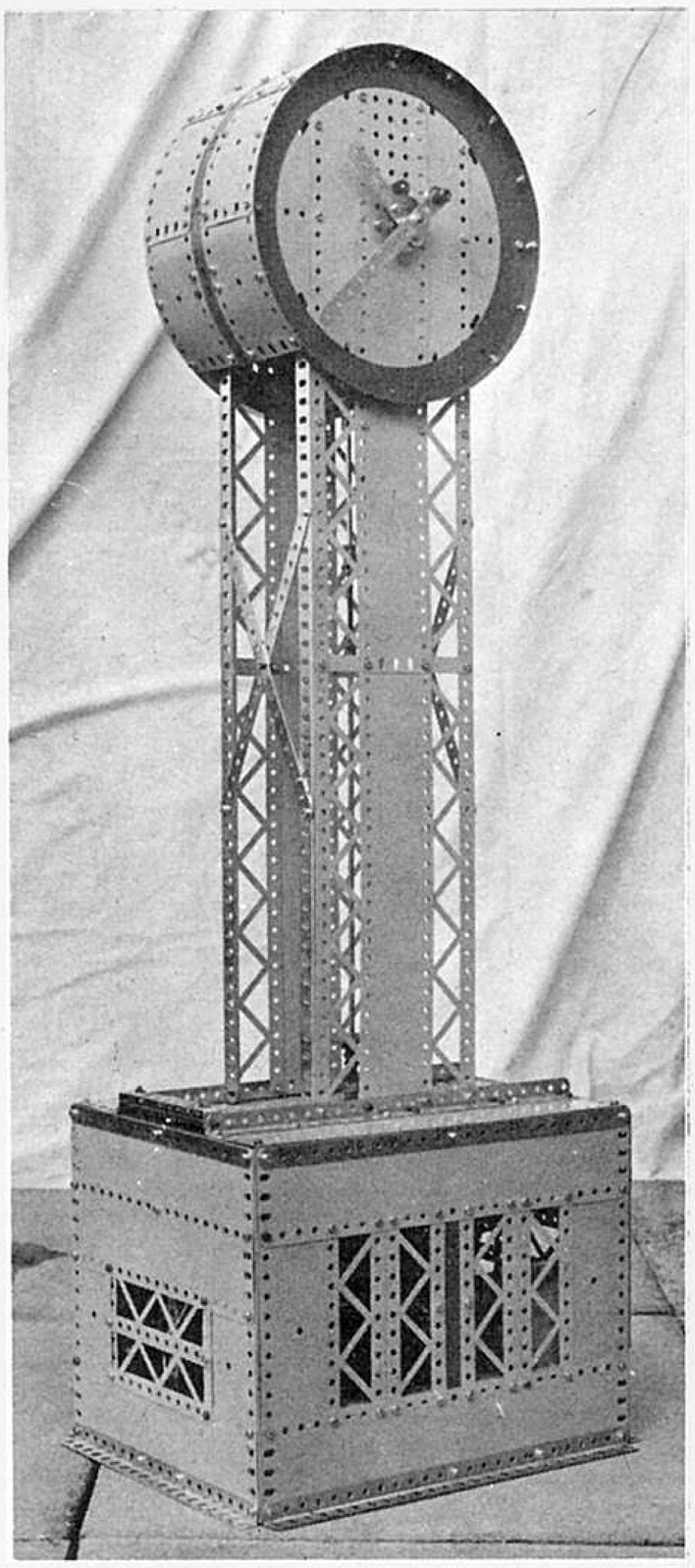
The identities of the various components in the diagram are given in the key provided with it, but one or two additional notes are necessary. The 2½" x 2½" Double Angle Brackets carrying Coils D should be moved in their elongated fixings C until the Coils just clear the rotor arms. The rotor arms, themselves, should be approximately evenly spread around the circumference of the 8-hole Wheel Disc, but exact setting is not vital. To start the motor, the rotor should be spun manually at around 750 rpm, at which point the Coils will take over and keep the rotor turning at exactly this speed.

When the motor is used in a Synchronous Clock, the speed needs to be reduced from 750 rpm to one revolution per hour and this can be done with a compound gear-reducing train as follows:
5:1 (19-t Pinion meshing with a 95-t Gear) x 5:1 x 5:1 x 2:1 (25-t Pinion and 50-t Gear) x 3:1 (19-t Pinion and 57-t Gear). This gives an overall reduction of 5 x 5 x 5 x 2 x 3 = 750:1 which results in a speed of one rpm as required by the second hand. For the one revolution per hour required by the minute hand a further 60:1 reduction is required and this can be obtained from a Worm driving a 60-t Gear, Part No. 27d. The hour hand would come off this at a 12:1 reduction, i.e. 3:1 x 4:1.

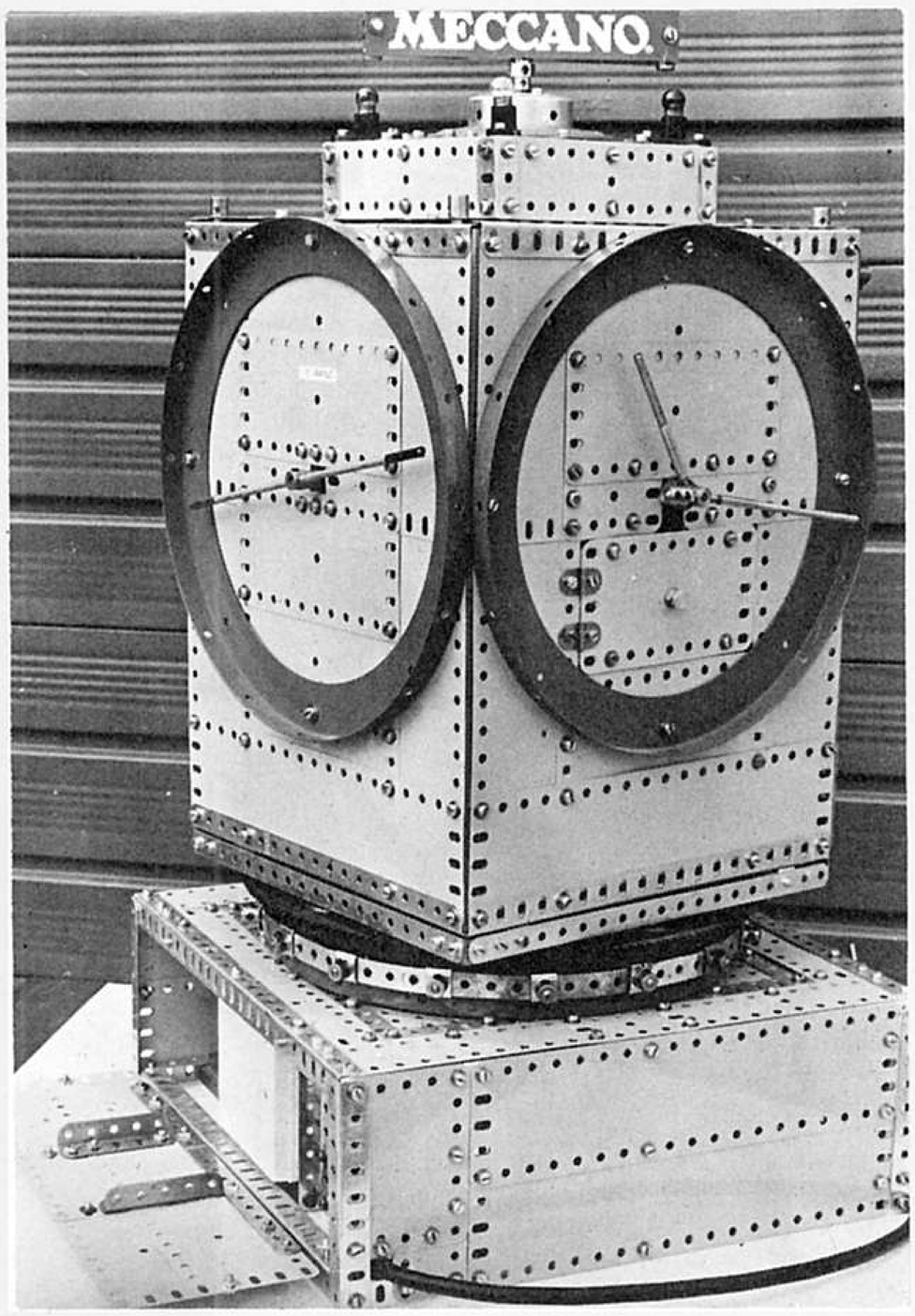
FACE SHOVEL GEARBOX

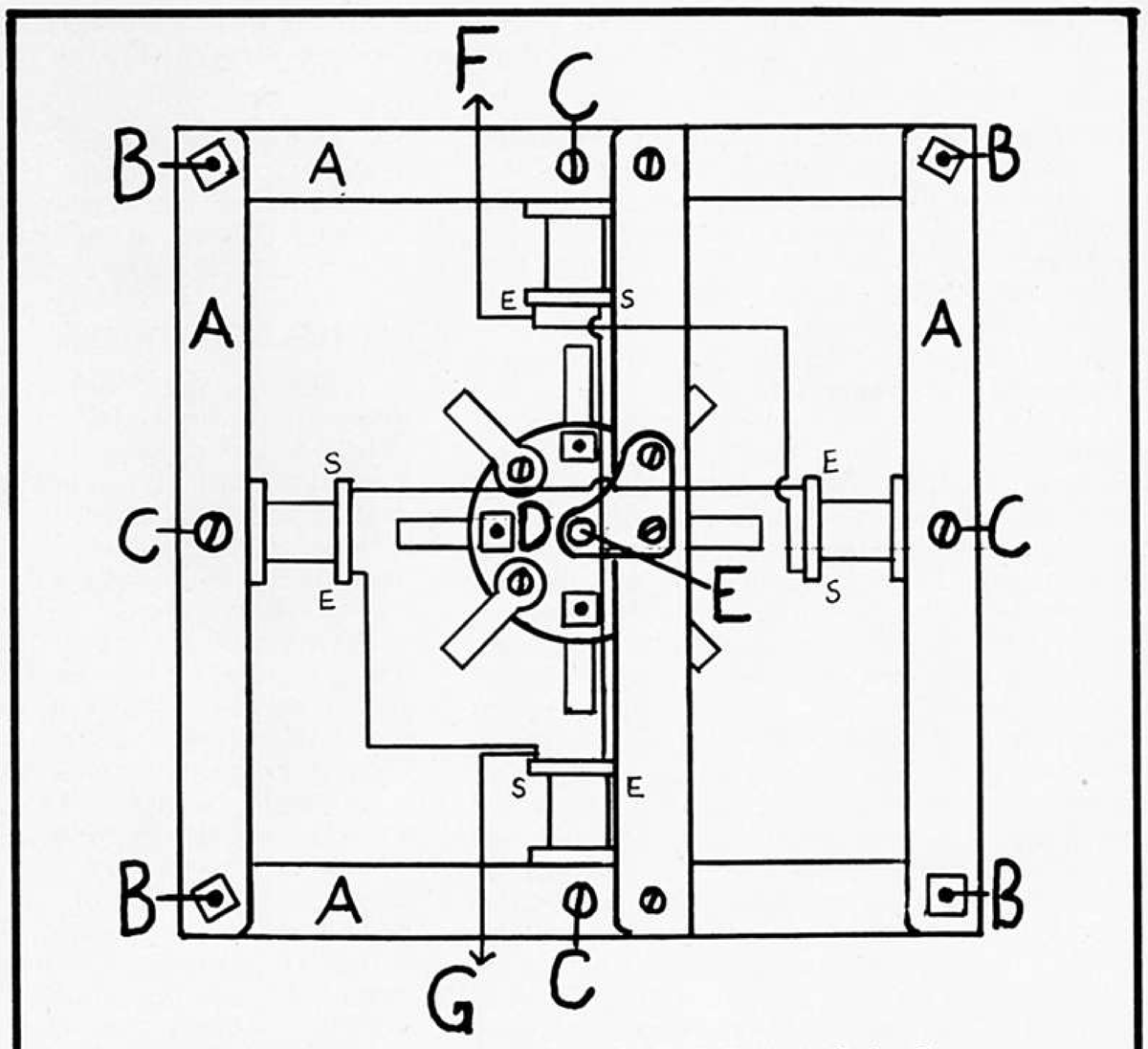
In January's MM, we featured an Adjustable Digger Arm designed by Mr. Dave Penney of New Whittington, Chesterfield. Since then Dave has supplied us with details of the Gearbox which he built to operate the Digger Arm and I have pleasure in including the details herewith as I feel they may be of interest to other enthusiasts.

Referring to the accompanying diagram, when 3½" Rod 16 (Fig. b) is pulled to the



The two Clocks, pictured above and below left, built by Mike Cotterill of Skegness, Lincolnshire. Both make use of the Synchronous Electric Motor developed by Mike for this sort of model. The Motor, shown diagramatically below right, runs at the steady and accurate speed of 750 rpm, this speed being 'synchronous' with the Alternating Current which drives it





A = 5½" Angle Girders joined by their slotted holes.
B = 3" Screwed Rods.
C = hold 2½"x ½" Double Angle Strips, to each of which are fixed a Cylindrical Coil and a Threaded Coil held by a Bolt.
D = Rotor: 8-hole Bush Wheel to which 8 Rod & Strip Connectors are fixed, 4 each side, alternately. The Wheel is secured to Rod E by Grub Screws.
F & G = terminals to power source of 4–10 volts A.C.
N.B. the opposite side of framework is a mirror image of this arrangement

FIG. A

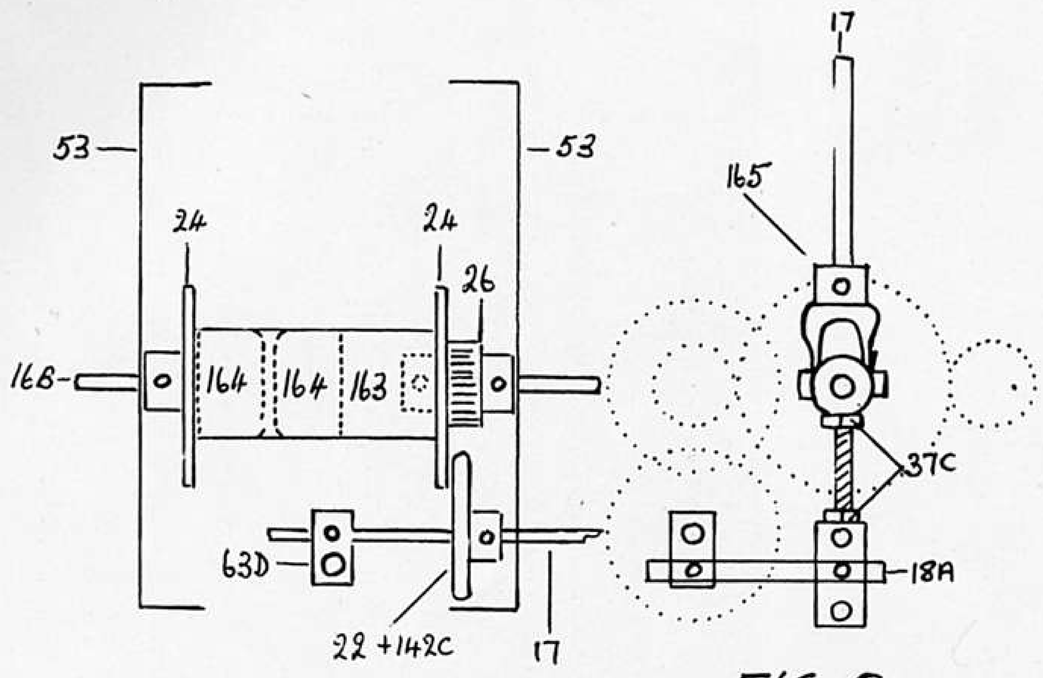


FIG. B

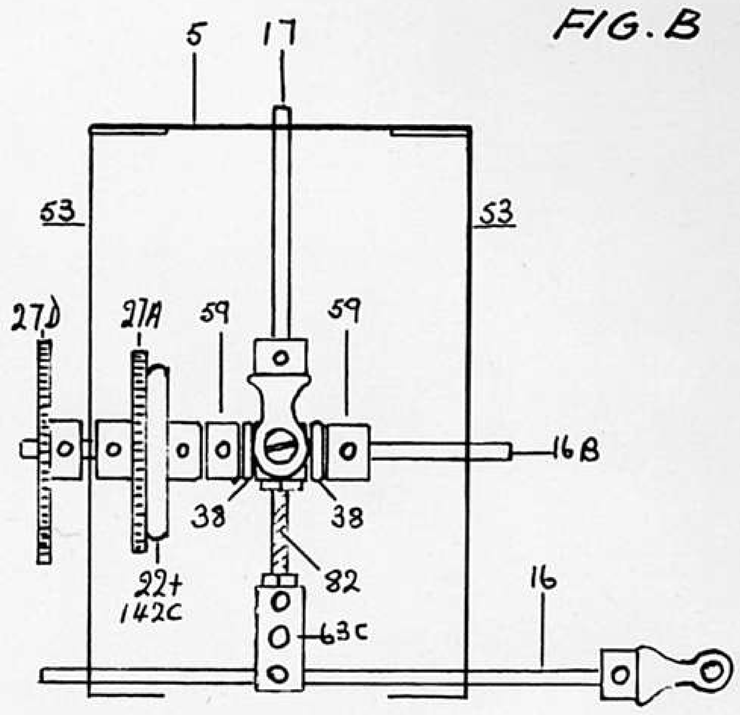
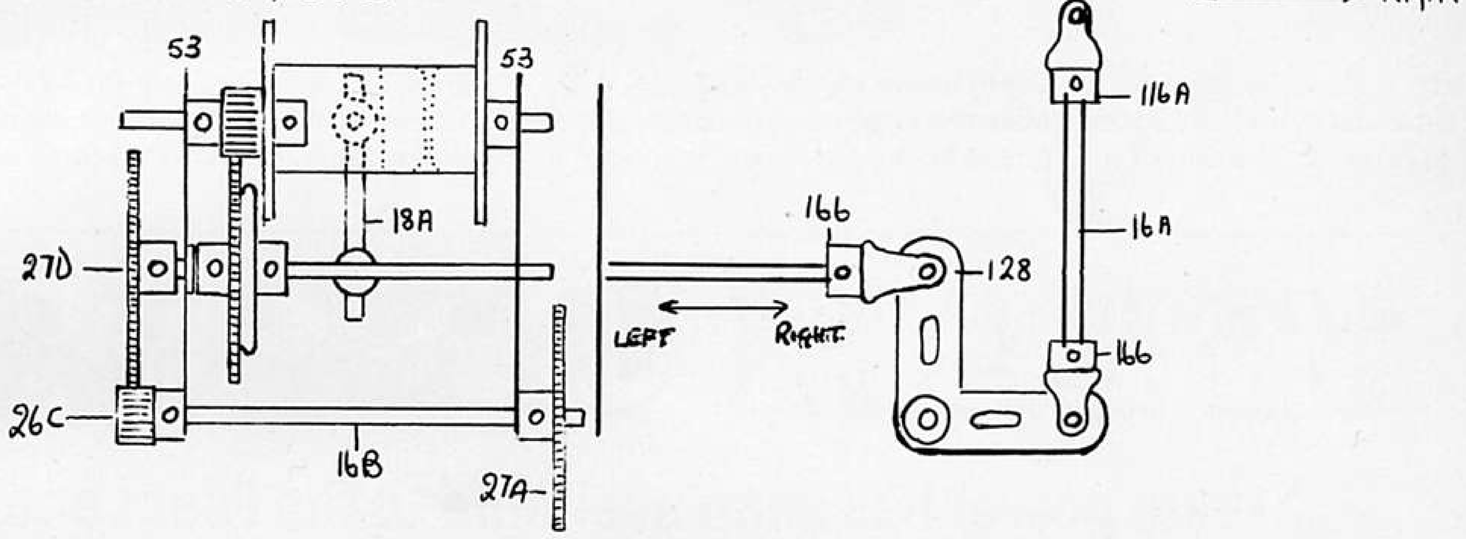
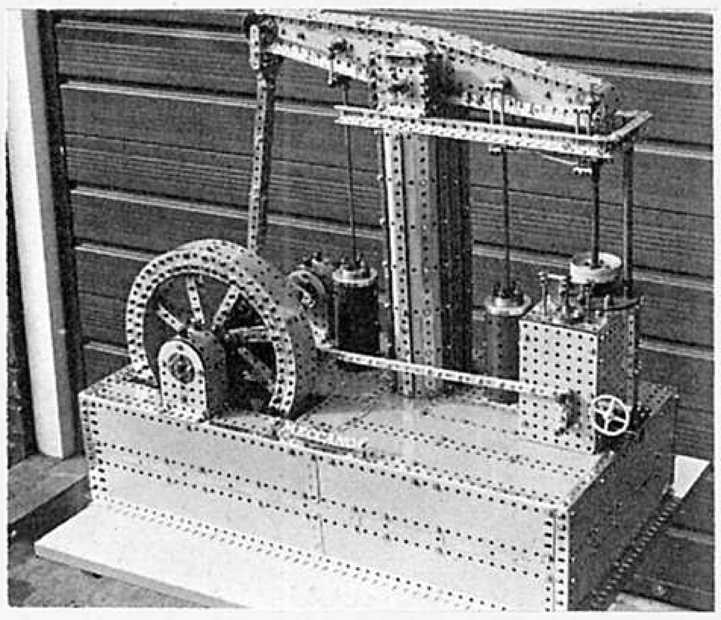
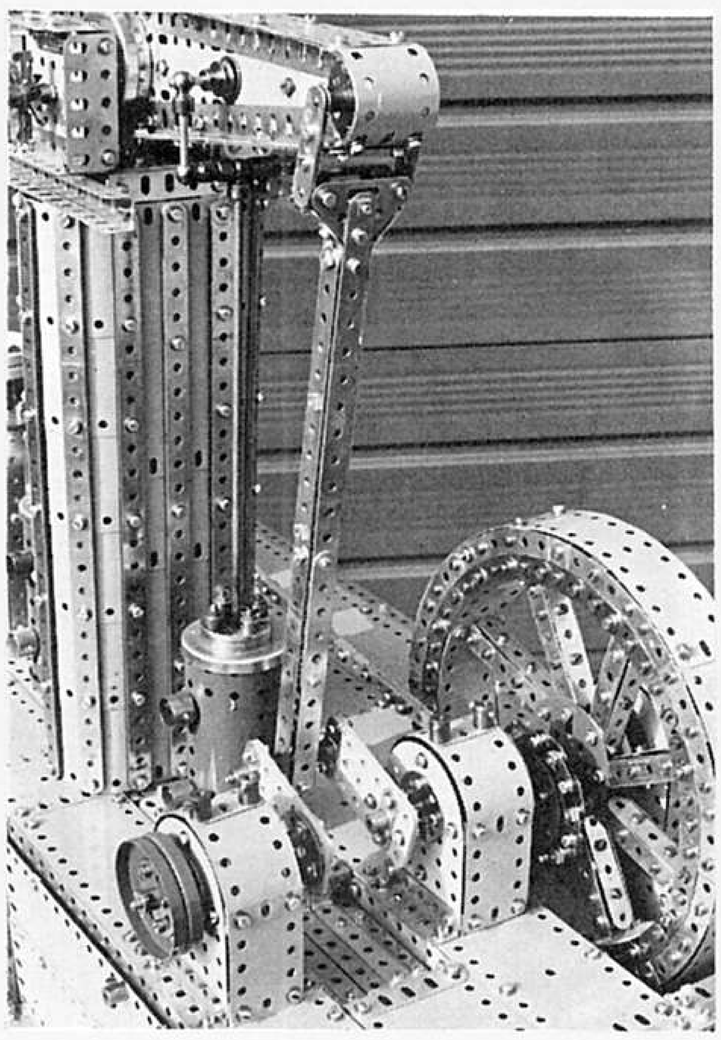


FIG. C







Above, diagrams of a Manual Gearbox developed by Dave Penney of New Whittington, Chesterfield, for use with the Digger Arm featured in these pages last issue. Pictured left are two views of a Stationary Steam-Powered Water Pumping Engine also by Mike Cotterell of Skegness, although not mentioned in the text. The original was used for coal mine and land drainage around 1870.

right, the wheel and tyre on Rod 17 (Fig. a) are made to engage with one of the Bush Wheels of the winding drum to act as a brake. Movement is transferred from Rod 16 to Rod 17 by means of a Threaded Coupling 63c (Fig. b), a 1½" Rod 18a (Fig. c) and a Short Coupling 63d (Fig. a).

When Rod 16 (Fig. b) is pushed to the left, the brake is released and the clutch for driving the winding drum is brought into action. The clutch is made from a 1" Pulley with Motor Tyre (Fig. b) which presses against a 57-t Gear Wheel 27a, free to turn on its shaft but in mesh with a ½" Pinion 26 (Fig. a), thus passing the drive to the winding drum shaft.

A 1" screwed Rod is locked by Nuts in the centre bore of Threaded Coupling 63c and in the collar of a Swivel Bearing. On each side of this Swivel Bearing collar are two Washers and two Collars 59 which act as thrust bearings when the unit is in operation. A 2" Rod 17 is fixed in the boss of the Swivel Bearing, the upper end of this Rod being mounted in a 2½" Strip as shown in Fig. b.

It will be found that there is a neutral position so that the drum can be left free for the rope to be paid out as the arm and bucket fall under their own weight for the next digging operation. With most cable-controlled Face Shovels, the arm and bucket will be held in the upper position while the machine slews to the discharge position, after which it will return to the working face and drop the bucket into the digging position, where it can again be operated. This Gearbox will allow all three movements to be operated, i.e. lift, hold and fall of bucket.

IDENTIFIED AT LAST!

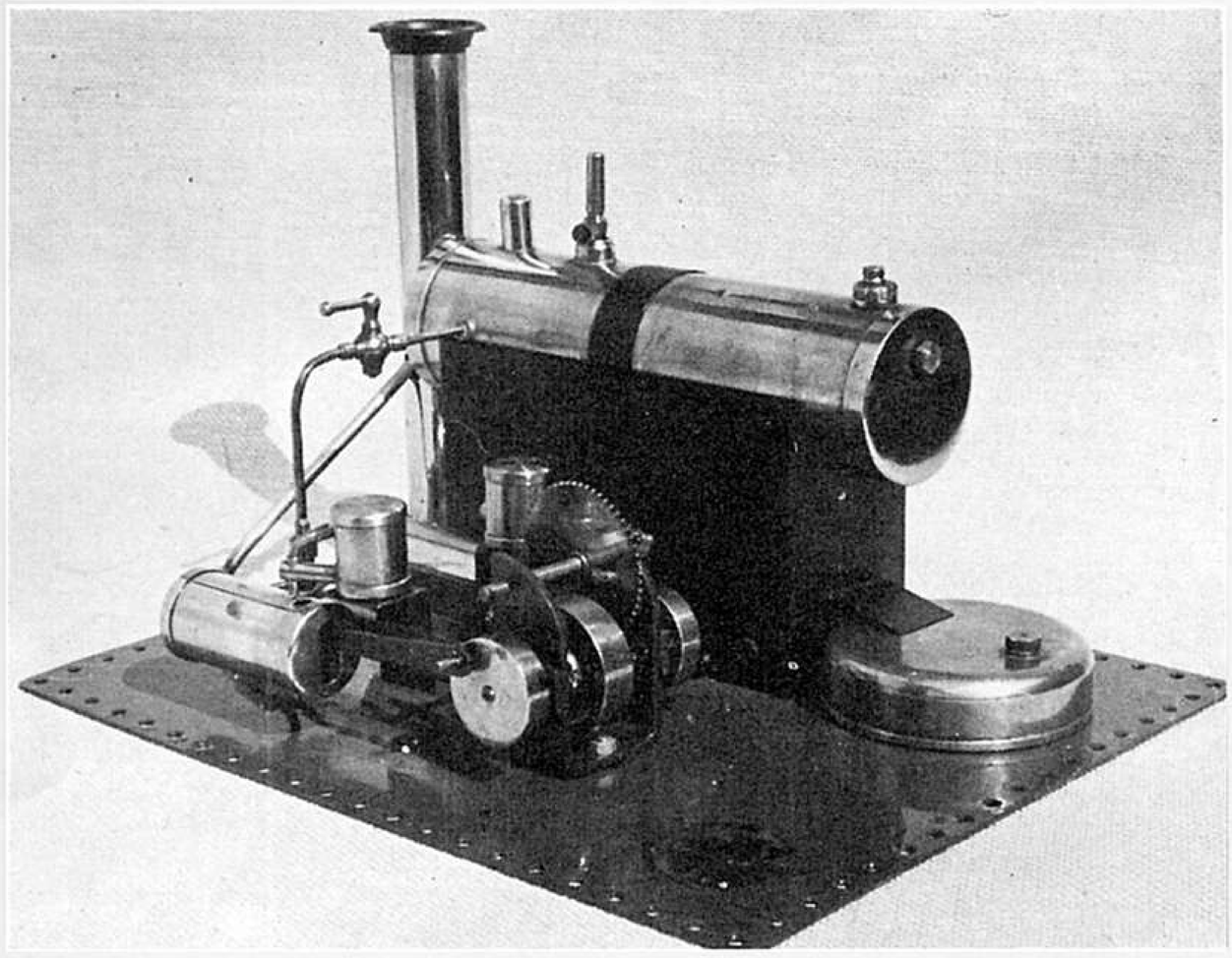
Finally, I am delighted to be able to reveal the identities of two readers who had models featured in "Show Scene '77" in our last issue, but who we were unable to identify at that time. In the Henley report on Page 21, we illustrated what we, in our ignorance, referred to as a 'Delta-wing Cargo Plane'. In fact, the model represented the American Space Shuttle with a 'Space Lab' carried inside its cargo hold, and full credit for its construction goes to Peter Brown of Stevenage, Herts., a member of the Stevenage Meccano Club.

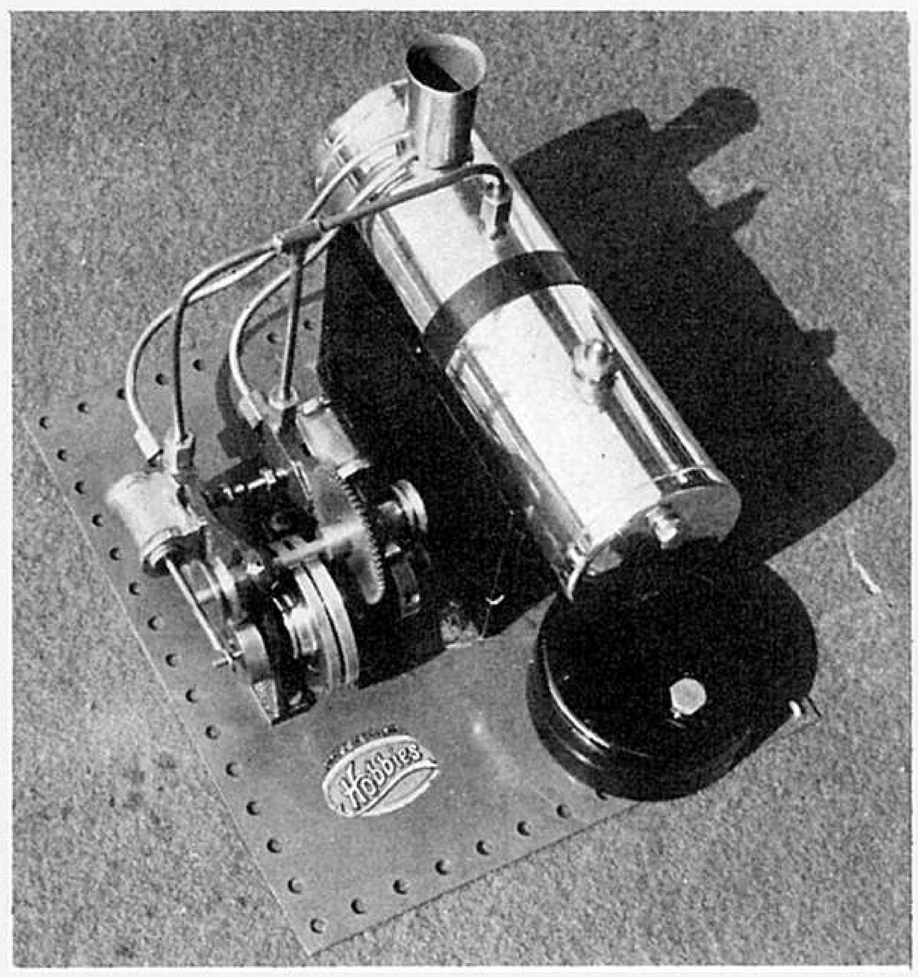
Midland Meccano Guild member W.S. Johnson of Bedworth, near Nuneaton, is our other mystery builder. His was the little Tank Engine featured in the Stoneleigh report on Page 23 of the January issue and he tells me that he built it mainly to show his grandson, Andrew, "how to put things together". Things certainly went together nicely, Mr. Johnson!

OBITUARY

It is with deep regret that we report the death on 1st March at his home in Stevenage Old Town of Mr. Victor Whitbread, aged 66. Mr. Whitbread had been a member of the Stevenage Meccano Club since 1972 and had helped at most of the Club's displays, exhibiting his model Tram Cars. Mr. Dennis Higginson, Secretary of the SMC, advises us that the Club will miss Mr. Whitbread greatly. A donation has been sent to the Cancer Research Fund on behalf of the SMC.

We also report with deep regret the death of Mr. Eric Jenkins, a former member of the Midlands Meccano Guild and a founder member of the Society of Advanced Meccano Constructors. Eric was a modeller of outstanding ability and, by way of tribute to him, we will be featuring one of his well-known models in the next issue of Meccano Magazine.





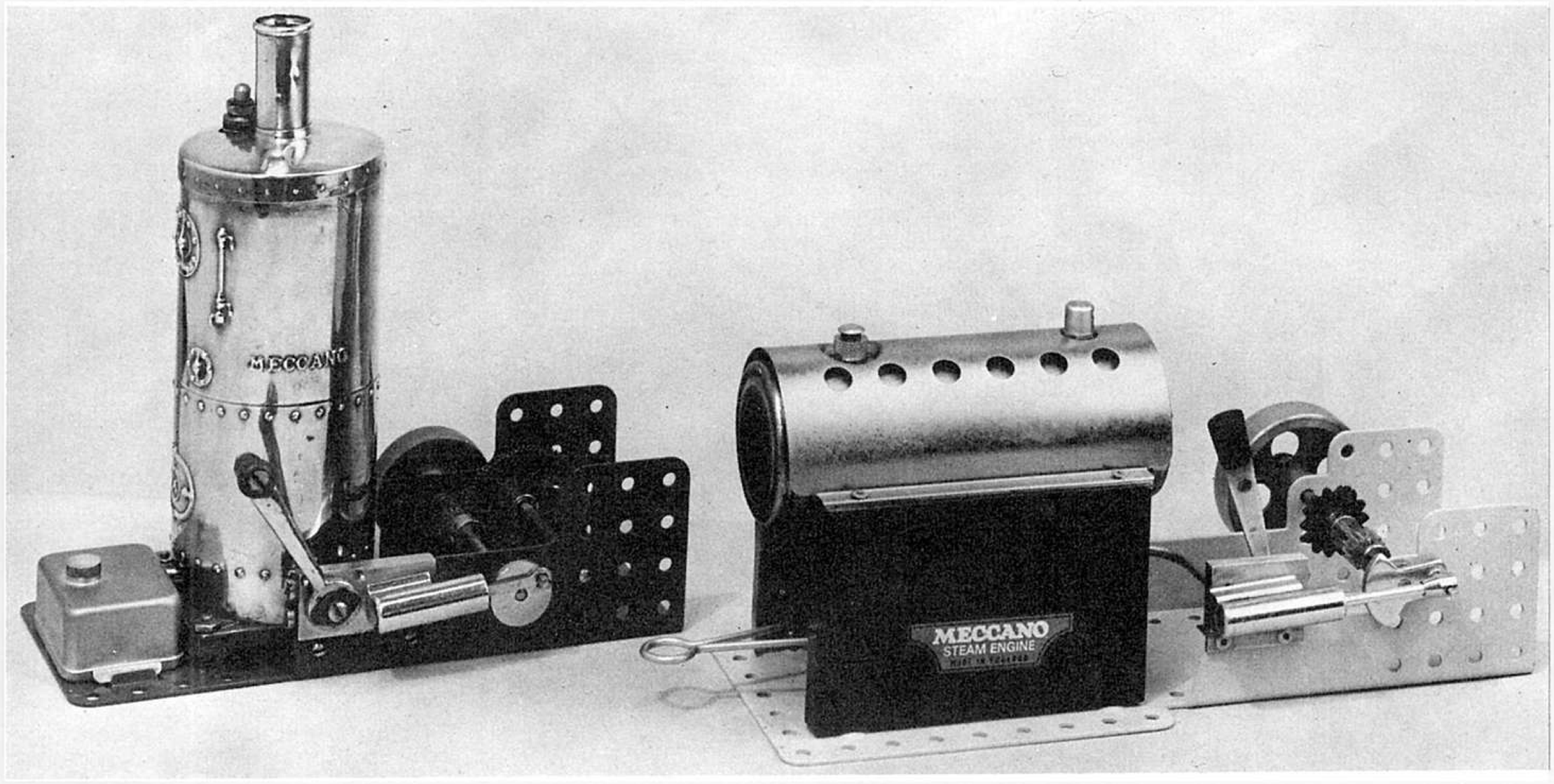
Above left, a Bowman twin-oscillating-cylinder engine, Cat. No. 122, of about 1927. It has drip-feed lubricators to oil the pistons as they partially emerge from the cylinders hidden under the large brass castings. Above right, one of the first Hobbies engines made by Geoffrey Malins after Bowman Jenkins gave up. Something of the current Mamod look can be seen in this early example, though the geared countershaft is very much a Bowman feature.

STEAM CAVALCADE

Steam power has been available to the Meccano modeller for almost as long as Meccano itself. BASIL HARLEY explains...

Although clockwork and electric motors have much to recommend them for simplicity, economy and ease of control the live steam engine has always had its devotees among Meccano engineers. In Britain and also in Germany miniature stationary steam engines, both "toy" and "model", had been made commercially long before Frank Hornby developed his great invention. By 1914 dozens of German makers were turning out spirit fired engines in their thousands with imaginative ranges of accessories for them to drive. I think it very likely that the first steam engine marketed by Meccano Ltd – the vertical engine of 1914 described by Bert Love in MMQ of October 1976 – was made in Germany. It bears all the hallmarks of one of Marklin's or Bing's standard production models. Many of these were imported (and labelled) by such companies as Bassett-Lowke, Redfern's of Sheffield and Gamages and there is no reason to doubt that Frank Hornby did likewise.

In the immediate post-WWI period German goods were pretty unpopular here and quite a few English makers started to produce stationary steam engines. There was Bar-Knight of Glasgow, Walter Piggott of London and Tribe



and Austin of Manchester among others. As in the case of the pre-War Meccano engine, however, none of their designs was in any way adapted for incorporation into the Meccano system. It was left to an imaginative maker of toy boats, Geoffrey Bowman Jenkins of Dereham in Norfolk, to first make, in the 1920s, stationary steam engines with steel base plates specially drilled and proportioned so that they could be built into Meccano models. Not only that, they were also very good, precision-made and powerful engines. He wrote: "In introducing our model steam engines for driving Meccano, Erector and other models we are opening a new era to the young embryo engineer ..... Many makers of really splendid models had never had the supreme joy of seeing them run under actual working conditions. In order to obtain the utmost realism steam power was obviously required, but the foreign engines available were hopelessly underpowered and unreliable."

I have related the story of these Bowman engines and how the present-day Mamod engines are related to them in *Toyshop Steam* (Argus Books 1978). It must suffice for now to say that Hobbies Ltd. was the link and that they were all horizontal engines with oscillating cylinders, the larger models having twin cylinders. Somethimes these were hidden in larger, stationary brass castings designed to conceal their toylike oscillations. All the baseplates were flat with a row of holes on ½" centres drilled (yes, drilled, not punched!) round the edges. The more expensive engines incorporated a geared countershaft to increase the power. Though lacking the charm and realism of the best German engines, these Bowman models were solid hardworking and efficient. By 1927 it was claimed that over 200,000 had been sold.

About the same time Warboys and Smart advertised their engines as being suitable for building into any Meccano model. They were also made in Dereham and Captain Smart was a relative of Bowman Jenkins – hence the "Jenkins Patent" under the trade mark.

The popularity of these designed-for-driving-Meccano-models engines must have influenced the Company to press ahead with its own version, the famous and most attractive vertical boilered engine of 1929. This, again described by Bert Love in Collector's Corner in MMQ for July 1973, bears some resemblance to the Wormar range, but has a baseplate with folded-up lugs perforated for the countershaft, crankshaft and other gearing. The crankshaft itself is of smaller diameter than the standard Meccano spindles and it is interesting that the present day Meccano Steam Engine, now made by Mamod, still has the same baseplate conformation *and* a similar sized crankshaft. This was specified by Meccano Ltd. when it was introduced in 1965 and a Mamod horizontal boiler was incorporated. A pity, really – the vertical boiler is so much more elegant and more suitable for building into cranes.

To return to the 1930s, this was an era of widespread competition to the Meccano system. *Erector* was popular in U.S.A. and, in Germany, they had *Industrie* (J. Falk), *Modello* (Ernst Plank), *Phantasie* (M. Kohnstam) and Marklin's sets, not named, with variants *Marbi* and *Elex*. Then there was *Trix* and later an English-made aluminium set called *Elgin* together with the tubular and clip systems *Anchor* (Bassett-Lowke) and *Technofix* (Einfalt). But despite this wealth of construction sets, no German steam engine maker made any attempt to design engines to fit into the systems. Marklin made an ingenious convertible steam motor which could be assembled as a vertical, a traction, or an overtype semi-portable engine and, although shown in the 1934 catalogue as a power unit for their construction sets, it was in no way adapted to be used easily with them. Towards the end of the 1930s the Meccano engine was discontinued and just before WW II only the new Mamod engines which had succeeded the Bowman range had bases drilled with "Meccano" holes.

Soon after that war, in the late 1940s and early 1950s, there was quite a flood of inexpensive English steam engines whose makers were often short-lived. Again, few were adapted to the system, but one, the rarely found *RODE* overtype engine of 1948 was specifically advertised as "drilled to work with Meccano". Abroad, the makers dwindled in numbers and today the best-known and virtually the only ones left, Wilesco in Germany and Jensen in U.S.A., make no design concessions to Meccano at all. One, however, a newcomer in the last year or so from Sweden, the John Ericsson engine made by Ab Alga, has a large base well drilled to provide a good foundation for complex models. It is an interesting engine with a most attractive (thought tiny) haystack boiler and a reversing single-acting, single-cylinder, oscillating engine. Quite different in appearance to any of the earlier engines, it is worthy of some special Meccano models being created for it.

It is fitting that, in England, the Meccano steam man has been most consistently served over the past thirty years or so by the wide and expanding range of Mamod engines – typically English and made in the heart of the Black Country. And we include in this the Meccano Steam Engine itself since it is also a Mamod engine, made by Malins (Engineers) Ltd. of Brierley Hill, West Midlands.

BRITISH THE WORMAR TRADE MARK JENKINS PATENT MADE

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NEW SUPERHEATED MODELS

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This drip feed oil adaptor is another unique advantage. You can add it to your engine at any time. Secured by one bolt only and ensures maximum power and wearing qualities.

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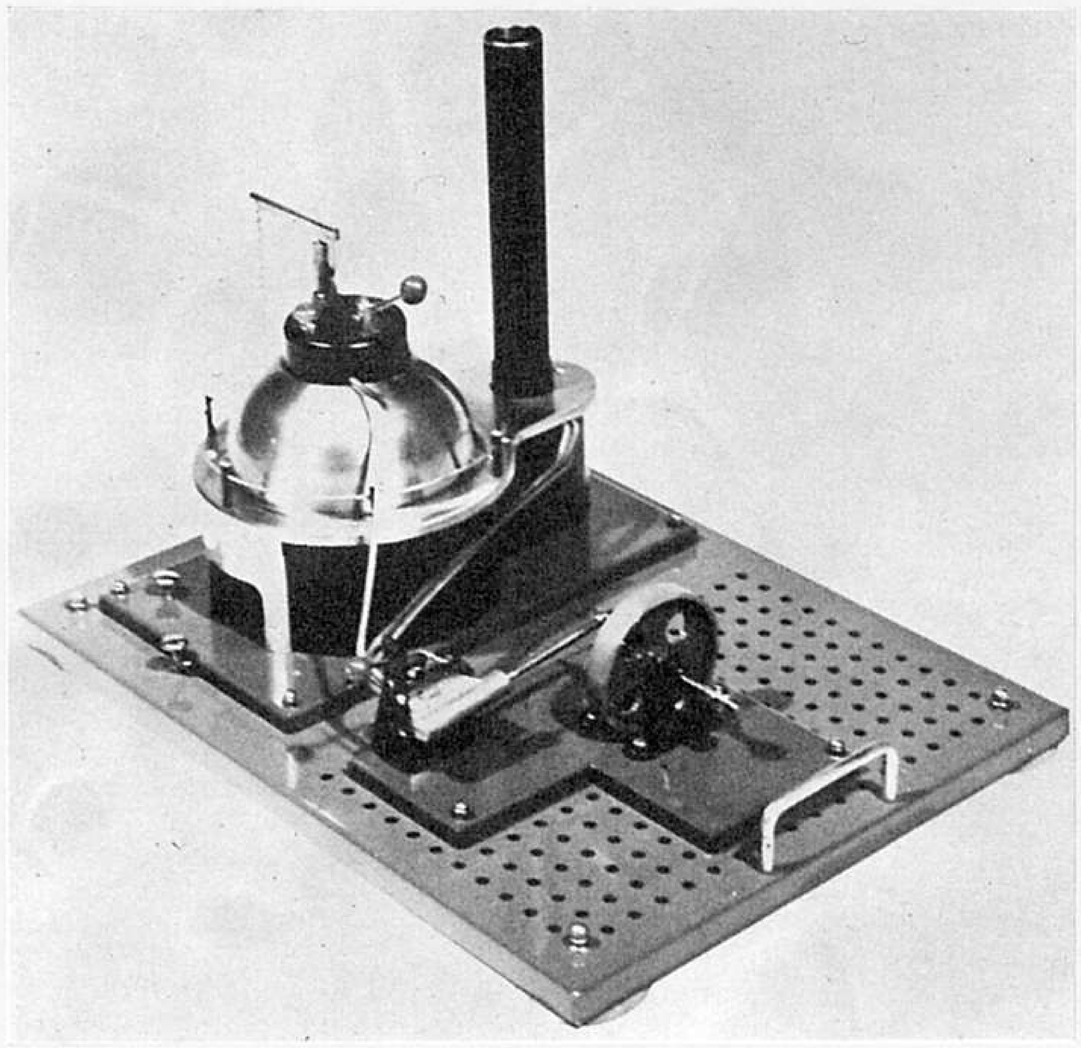
Postage abroad is usually 2/3 either model. Any excess returned.



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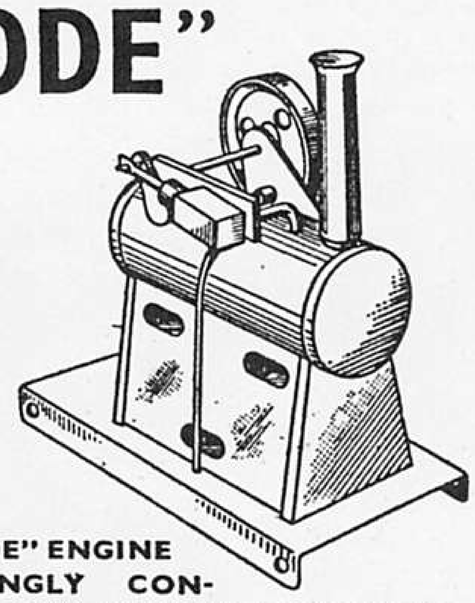
Above, an advertisement from a 1927 M.M.



Left, a rare example of the 1929 Meccano Steam Engine making an interesting comparison with the contemporary Mamod-made engine on the right. Right, the Ab Alga engine called the John Ericsson. Far right, the RODE engine of 1948 typifies a large number of post-war engines made in very small quantities and for a very short time.

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* * *

Part 7 – Editing

All films need to be edited to make presentable for showing to an audience. the editor of a book or magazine has first of all to collect his material or "copy" and then check it for suitability. He may re-arrange or re-write certain parts of the copy to fit in with his ideas as to how the magazine should appear. He decides on such matters as layout, type size and style, selection of suitable illustrations and so on. And all this is done in accordance with his ideas on style.

In the world of film, editing is carried out on much the same principles, i.e. selection of suitable material and rejection of sub-standard; arrangement into some kind of order; cutting or trimming to fit within a given format. In the film industry the Editor is guided to a large extent by the film Director and in the publishing trade this principle may well still apply, with the Editor acting in accordance with policies laid down by an Editorial Director. Alfred Hitchcock effects so much control over the films he directs that the Editor can only edit his film in the way that Hitchcock wants; each filmic shot is so carefully carried out that there is no room for deviations in the editing process!

However, it has been said many times that film is the *Editor's* medium, not the Director's. The intended meaning behind this is that the Editor can exercise a tremendous power of expression. Up until the point of editing, a film consists merely of a series of individual shots – long shots, close-ups, pans, zooms, etc. all of varying length. The Editor's job is to weld, or blend this assortment of unconnected shots into an integrated whole; in the same way that a football team manager works to make a team out of individual players. Each filmic shot has a part to play in the film, but it doesn't play its part alone. It becomes part of a "team". It is this assemblage of shots together that puts over the idea held within the film, not the individual scenes. The scenes form the "sentences" that together tell a story.

It follows, therefore, that before you edit your film, you need to decide within your own mind just what is the story you are trying to tell. What is the *idea* you want to communicate? The story, or message may be a very simple one such as "This is my latest model. Let me show you how detailed it is." Or it may be a completely fictional work, where Meccano models are used as "props" to enact a story. In this case the most probable aim is simply to entertain.

Different approaches demand a different treatment. If you are making a documentary type of film to show off the features of your model, you will need sharp, clear, well-lit pictures that will portray the model in the greatest detail. The style of camerawork will be factual and straightforward. If you are using models to tell a story, then the whole approach will be different. Your lighting set-up will be different for a start. You will want to create lighting conditions that will simulate natural effects, such as sunlight, moonlight, etc. Directional lighting, that throws deep shadows, can also be used to create different moods; mysterious, dramatic, menacing and so on. And so it is with your editing. A dramatic story film will very likely require fast moving sequences of short shots that are carefully planned as to order of presentation and duration of each shot. A documentary style film will probably be set at a more leisurely pace, giving ample time to digest the information given via the soundtrack and to take in all the details seen on the screen.

Editing is a creative process, and in common with all creative processes it has a mechanical, routine side to it as well as the creative, artistic side. In this article we shall deal primarily with the mechanical processes of editing; the splicing, viewing, and re-arrangement of shots into the required order.

EQUIPMENT NEEDED

The first item of equipment you will need is an *editor*, also referred to as an animated viewer. A good projector which has been well looked after will be kind to your film. You will be able to show your films many times without damage. However, not all projectors are that perfect! Accidents can also happen.

When editing, we shall want to view perhaps the same short sequence over and over again. To save time the film is run to and fro, rather than showing the entire film each time. We shall want to vary the speed at which we view the film in order to analyse action and determine exactly where to end a shot. We shall want to view individual frames and move forwards or backwards one frame at a time. All of these functions can be carried out easily with an editor. To attempt the same with a projector would place unfair demands on the equipment. Loops can be lost, sprocket holes damaged, scratches may occur, to say nothing of the heavy demands placed on the projector lamp by the repeated switching on and off. Very basic editing *is* possible using the projector, but I strongly advise against it.

Choose your editor with care. Some are kinder to film than others. There should be absolutely *no contact* between the picture area of the film and any part of the viewer. This is essential to ensure scratch-free viewing with repeated runs of film through the editor. The viewer should be *simple to lace with film.* You want to be able to insert and remove your film quickly and easily, as you will be doing it frequently during a session. Complicated and tortuous film paths cause frayed tempers – so choose a viewer with a simple loading procedure. A useful additional feature is a film marker, which punches a hole in the frame being viewed in order to assist in locating the exact point where a cut is to be made.

Some viewers are designed to take both Standard 8 and Super 8 film as in Fig.1. This model is particularly convenient as the film sprocket teeth are in two stages as shown in Fig.2. Standard 8 film settles at the base of the sprocket teeth and Super 8 at the tip. The differing diameters automatically compensate for the slight difference in pitch between the two film gauges and this is particularly handy if you are likely to work with both film gauges.

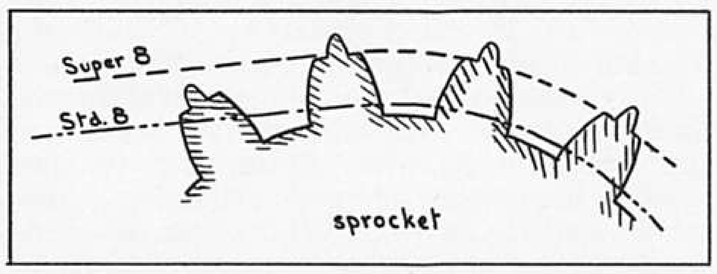


Fig. 2, this interesting sprocket tooth profile avoids the need for two separate sprocket wheels for the two types of film.

Most modern viewers have a usefully large and brightly-lit viewing screen, but if buying second hand beware small, dim pictures!

The next essential item is a film splicer, which is used to join together lengths of film. There are two basic types; namely, "tape" and "cement" splicers, the difference lying in the medium used to actually join the film ends together. These are, respectively, self-adhesive transparent tape and a solvent cement. Generally speaking, a tape splicer is cheaper to buy, but the cost of the splicing is relatively high. Conversely, cement splicers cost more initially, but the cost of cement per splice is infinitesimal. So, depending on how much editing you expect to do, either one could be the cheaper to use. I personally prefer cement splices although they are more fiddly to make. They are less obvious on the screen than tape splices because they are so much smaller.

With a little practice one soon acquires a rhythm of operating so that splices can be carried out quickly and surely. The splicer consists of two halves into each of which the two pieces of film to be joined are placed. A small scraper shapes the ends of the film and removes the emulsion. The ends are quickly trimmed to length by momentarily closing the flaps. A spot of film cement is applied to the film end and the flaps are closed. After a few seconds the splicer is opened and the film is removed. In using the scraper a dust of film particles is created which should be

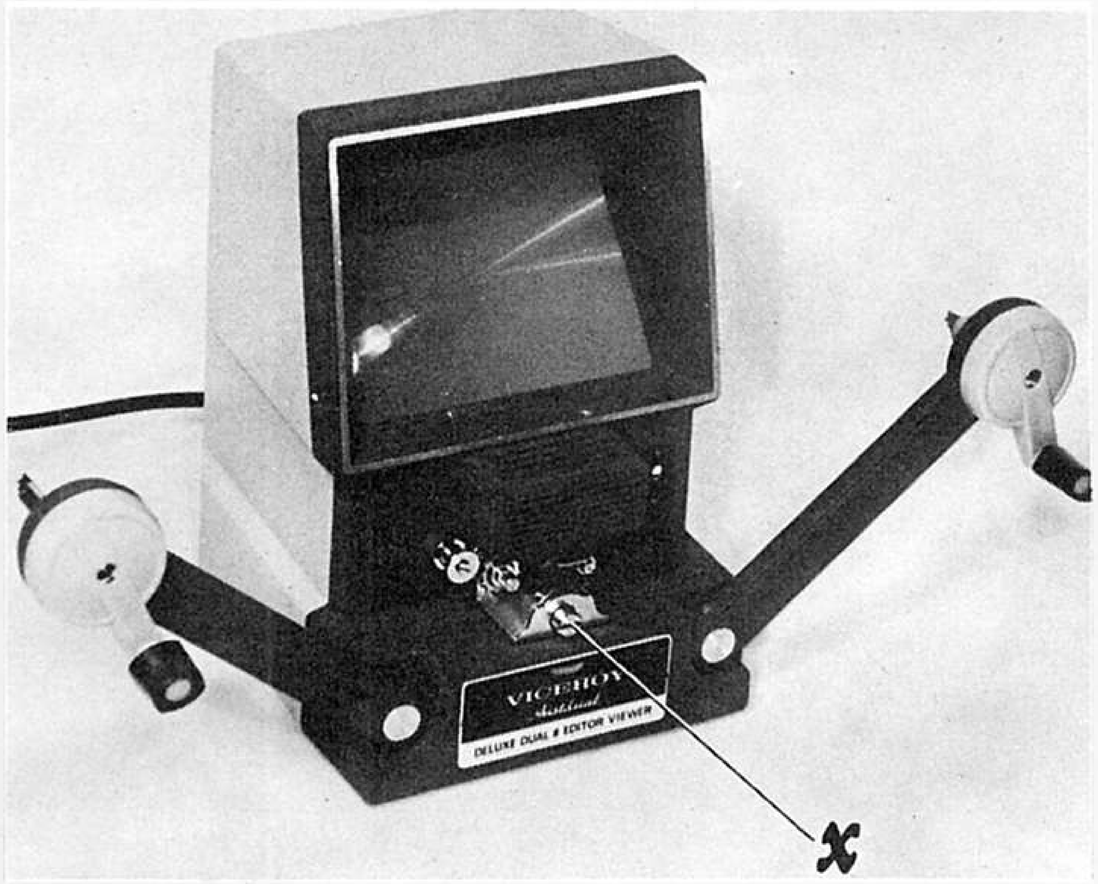


Fig. 1, an animated film viewer for Super 8 and Standard 8 films. The changeover from one gauge to the next is effected by means of one screw only, this marked "X" in the picture.



Fig. 3, the Author hard at work during an editing session. To the right is seen a useful sorting tray made from old film reel covers glued to a piece of plywood. A compartmented tray such as this is needed to ensure that the film pieces remain in sequence.

carefully brushed away, using a small soft brush.

Different splicers shape the film ends differently, and I strongly recommend a *bevel overlap* splicer. Cement splicers do tend to increase the thickness of the film at the point of overlap. A bevel overlap splicer keeps this increase to a minimum, so that the film runs through the projector more smoothly. This is especially important if your films are to eventually have a magnetic soundtrack added, in order to avoid any "dropout" of sound as the splice passes over the soundhead. If, when using a tape splicer, you intend adding a magnetic soundtrack, do make sure the splicing tapes are of the correct type. Splicing tapes made for sound films do not cover the entire width of the film, but leave the soundtrack area free from tape. Incidently, never be tempted to use Sellotape for film splicing. It looks the same as proper splicing tape, but has a tendency to ooze in course of time, causing film to stick to the next layer on the reel and attracting dirt and dust. This is fatal to the care of your precious films.

Naturally, according to the type of splicer you use, you will also need a supply of either splicing tapes or cement. Supplied with most bottles of film cement is a small spatula for applying a smear to the film ends. This is best thrown away, as it is too large and crude for a neat splicing job! Far better to use a small paintbrush, about size no. 3 or 4. This can be dipped into the cement to just the right depth so as to transfer the optimum amount of solvent cement: not too much to cause it to spread everywhere and distort the film, but just enough to ooze very slightly from the overlapped ends. Wipe the brush on a clean cloth after each application to prevent residues of cement from hardening the bristles.

Care is needed in handling the film during editing. Professionals and keen amateurs wear cotton gloves to prevent the disposition of sweaty fingerprints on the film. I have never been able to work wearing gloves as they always seem to get in the way. I have found that, as long as you avoid fingering the face of the film and only handle it by the edges, there is no need to have to wear gloves.

The only other item you will need is an editing sorting tray. This consists of a compartmented tray into which individual shots, or sequences, are placed to keep them in order. Editing trays have appeared on the market from time to time but they are quite easily made up by glueing discarded film reel covers onto a suitably-sized sheet of plywood or hardboard (Fig. 3). Each compartment is then numbered in sequence. Instead of using trays, some film-makers work with a strip of numbered hooks affixed to the wall. Strips of film are suspended from the hooks and hang loosely in a white linen bag. This is OK until a shot falls off its hook into the bag, when you are faced with having to find it again from among all the lengths of film hanging in there!

BASIC EDITING

Many people these days use cine cameras, but many of them do no editing at all. If you expect other people to sit and watch your films, it is only humane to carry out some form of editing, however basic, to make them presentable. Starting on the bottom rung, the most basic edit is to splice together in sequence all the individual 50 ft. reels dealing with one particular topic and wind this composite film onto one larger (200 ft. or 400 ft.) reel. In doing this, the individual white leaders are removed and may be put at the beginning of the reel of film.

The next stage is to run through and remove all the "rubbish", i.e. the blank/fogged film at the beginning and end of each reel. Also, in the case of Standard 8, the blank/fogged film in the middle where the reel was turned over in the camera. Other shots which should be removed are those which are hopelessly under- or over-exposed, or out of focus. In some cases, you may have taken two similar shots because the first one was spoilt in some way. (You forgot to switch the floodlamps on, or a hand got in the way at the moment of exposure!) These dud shots can also be removed at this stage.

Next we can add titles. A main title and end title at least, but possibly also sub-titles at stages throughout the film, where appropriate.

Having reached this far in basic editing, you will have already progressed beyond the point of most holiday snapshooters. Even so, you will only have "tidied up", as it were, and will have only scratched the surface as regards proper editing. For a properly-made film, the task goes much deeper and encompasses the principles of the language of film. The approach to creative editing is different from basic editing or "tidying up" and we shall now consider this.

FULL EDITING

The actual mechanics of editing will vary slightly from person to person, according to personal preference, but will in general follow similar lines. In the professional film industry, the Editor will work with a *cutting copy*, which is a black and white duplicate of the original film. With his cutting copy he can re-arrange sequences, insert or omit shots, trim to length and experiment generally to his heart's content until he has achieved the desired effect. Having edited the cutting copy, the original is protected until such time as the Editor has determined what the final form will be.

Cutting copies for amateurs are a luxury, and we have to work with the camera original. A useful alternative to the cutting copy is to first of all run the reels of film (unedited and fresh from processing) through the editor and compile a list of all the shots. In compiling this list, note details of the action within the scene, the setting where the action takes place, direction of movements, etc. – anything, in fact, which will affect the placing of the shot →

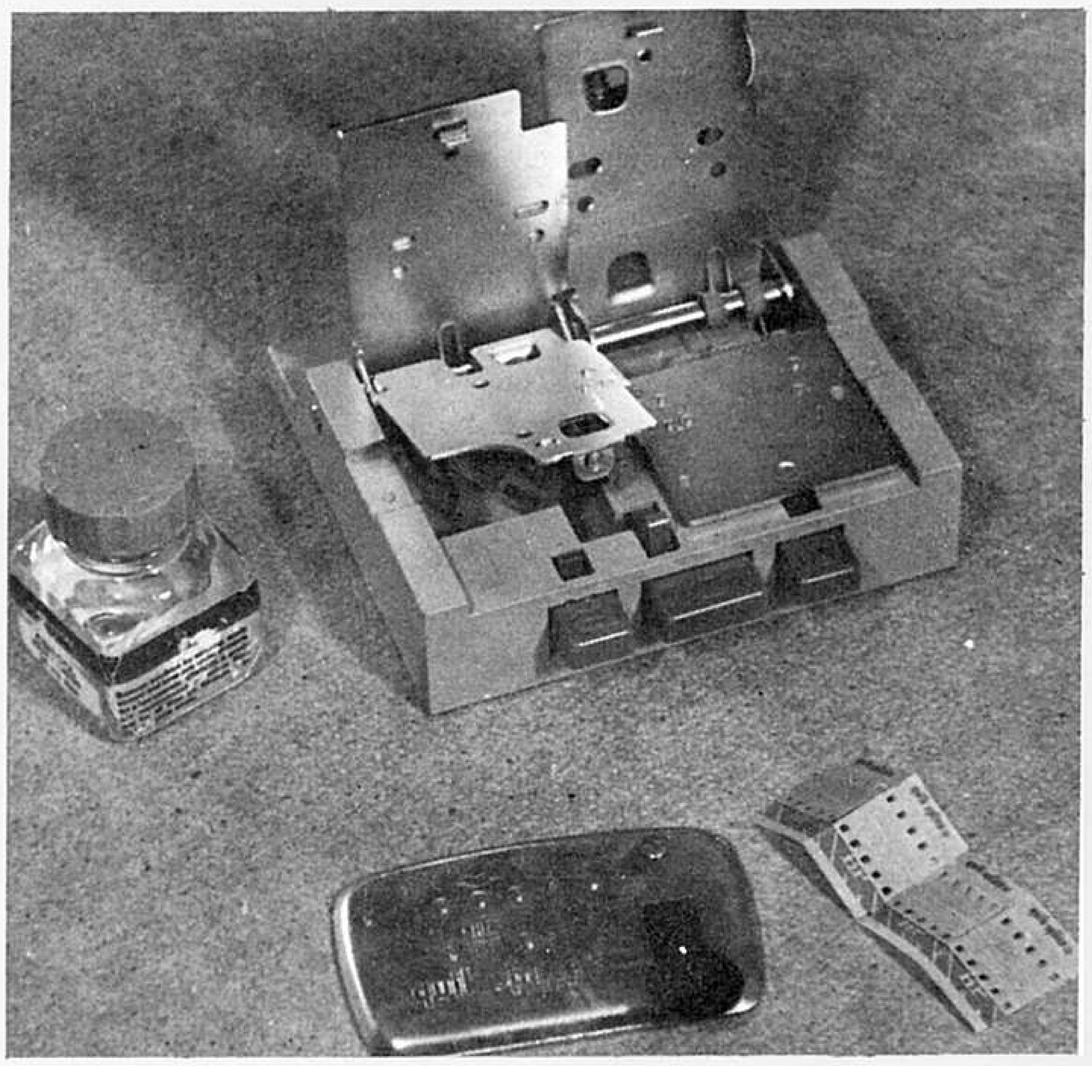


Fig. 4, the two basic types of film splicer. The larger unit, top, is for "wet" or cement splices; the smaller unit below it is a very basic "dry" or tape splicer. A tape splicer is cheaper to buy, but the splices are relatively costly; a wet splicer is more expensive initially, but the splice cost is minute.

SUBJECT:- Grandfather Clock

SHOT NO.	TYPE OF SHOT	DESCRIPTION	FINAL SEQUENCE
1	L.S.	General view of clock - from front	1
2	L.S.	General view of clock - from front. Demonstrator enters from L., removes front panel and winding cover, obtains wind handle, winds movement, winds strike mechanism, replaces handle and front panel. Exit L.	4 - first 18" scrap 12" 6 - 10" scrap 18" 10 - last 24"
3	M.S.	General view of mechanism from rear, L.side	2
4	M.S.	General view of mechanism from rear, R.side	3
5	C.U.	Winding drum - stationary - starts to turn as clock is wound up.	8
6	M.S.	From R.side. Demonstrator removes front panel	5
7	C.U.	Winding shaft - badly out of focus	scrap
8	C.U.	Winding shaft - demonstrator locates winding handle and commences winding.	7
9	C.U.	Drive weight - rises as clock is wound	9

Fig. 5: a typical listing of film shots. The column on the extreme left is the numbered sequence as taken in the camera and the column on the extreme right is the order in which the shots will eventually be arranged. The second column sets out the type of shot, i.e. long shot (L.S.); medium shot (M.S.) and close-up (C.U.)

←

in the film. Also note the type of shot: long shot (general view from a distance), close-up (self explanatory), medium shot (something between a long shot and a close-up), and a big close-up (very close close-up). Note if there are any pan or zoom movements. Note the approximate duration in seconds. List every shot, including dud or duplicated shots. Treat a jump cut as two individual shots from the same viewpoint. Number each shot in sequence. This list of shots (Fig. 5) is for use as an "aide-memoire" and becomes in effect your cutting copy. The original is tucked safely out of the way and only referred to when you want to check a shot against its description on the list.

Now you can "paper edit" by arranging and re-arranging shots into different sequences, even to the extent of physically cutting the list into individual shots and juggling about with the resulting slips of paper until the film takes the form you want.

Now re-number the shots in this final order, using a red pencil to avoid confusion of the different numbers. The list of shots can then be re-assembled into its original order, i.e. the order in which the shots were filmed. Now you can get out the film itself and separate the individual shots, "topping and tailing" each shot where necessary. There may be a brief period of inaction at the beginning or end of a shot, or some distracting object may have got in the way to make you stop filming. These unwanted frames are best removed at this stage. The separated shots can be placed into the sorting trays in the order in which they are required in the finished film (red number order). All that now remains is to splice each separate shot, or series of shots, together and wind back onto the reel.

If it turns out that a series of shots is required to be in the order and of the same length as it was originally filmed, there is no necessity for separating the shots and then resplicing them together again. In fact, the fewer splices the better. With fewer splices, there is less risk of a splice coming apart when it is being shown and less risk of sound drop-out.

If your film has been shot off-the-cuff, without working to a planned script, the above method will be found to be the most practical way of editing. Even if you have filmed to a prepared script it is unlikely that the order of shots as filmed will be exactly as required in the finished film. Furthermore, unplanned action may well have occurred within some shots. A shot may be fluffed, necessitating a retake, or you may simply have slipped in a few extra shots on the spur of the moment. The net result is that you end up with an assortment of shots that still need listing and re-arranging. So either way, the pattern of procedure remains the same. However, it should be emphasised that, by working with a script both when filming and when editing, there will be much less wastage of film and less will end up in the waste bin.

IN GENERAL

An ability to think in terms of visual images is invaluable when editing. By this I mean the ability to conjure up a mental picture of a scene. The listing of shots is used to help you recreate each shot in your mind's eye. You can then try to visualise the effect of one shot following immediately after another, without going to the extent of actually splicing them together and viewing them on the editor.

Bear in mind that a shot may be divided up into two or more sections, with other shots being inserted in-between. For example, a medium or long shot lasting, say, 15 seconds or more may well benefit from being split up by inserting a close-up. Maintaining interest is difficult with shots that are overlong. An inserted close-up adds variety.

If you are editing a long film – say, of more than 5 minutes' duration – it will be found simpler to edit in stages. The film can be divided up into individual sequences, each dealing with a particular aspect of the model. Each sequence is then edited separately – although of course the relationship of each sequence with the others must always be borne in mind.

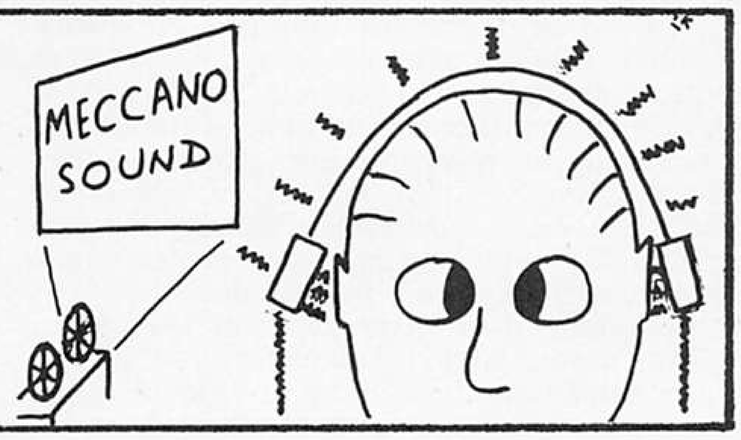
CONTINUITY

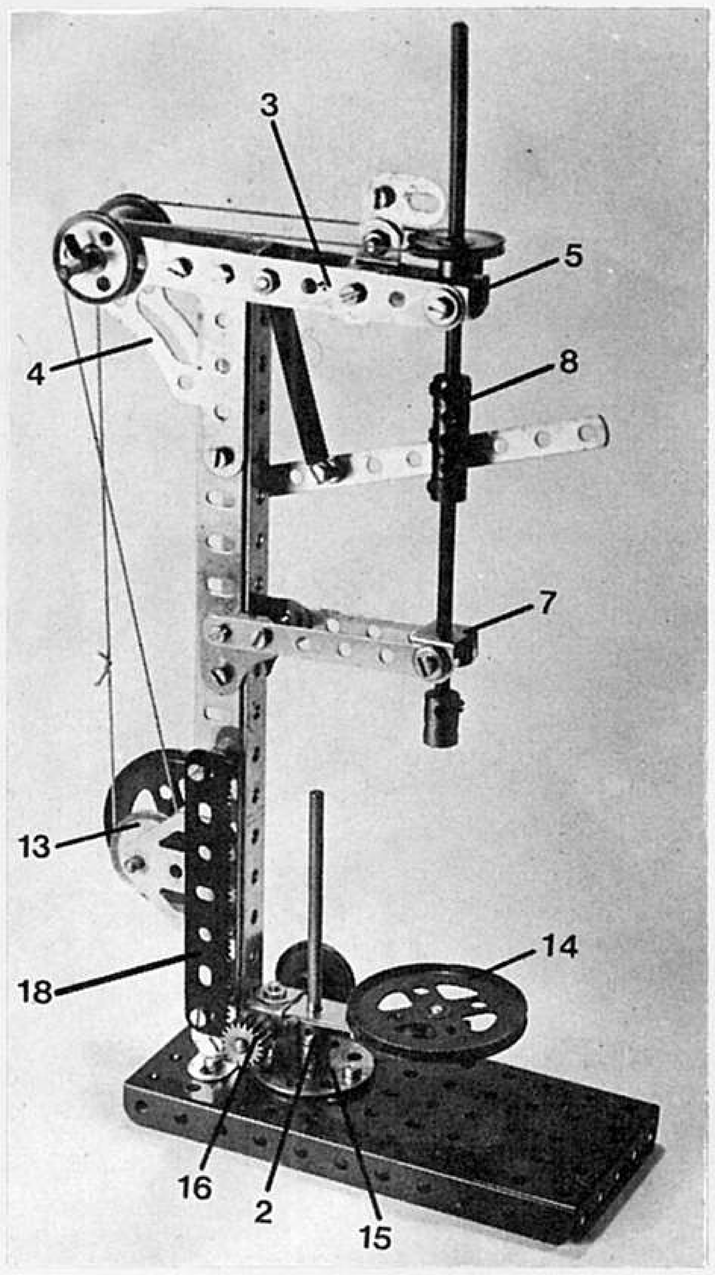
In deciding upon the order into which each shot will be placed, a weather eye must be kept for good *continuity*. By good continuity I mean that elements within the sphere of action must not change inexplicably from one shot to another. For example, if in one shot the turret of your model tank is facing forward, it must still be facing forward in the next shot. If a hatch is open in one shot, it must still be open in the next. Lighting conditions should be consistent from one shot to the next, and so on.

If a change takes place within a shot itself, well and good. The audience sees the change occurring, and its cause, and therefore accepts it. It is the unexplained changes that jar one into realizing that something is wrong. If, when watching a TV film, an actress walks through a doorway, we naturally expect her to be dressed the same when she enters the next room. This continuity is not achieved by accident. Professionals employ a Continuity Girl whose specific job it is to ensure these consistencies.

If, in editing, two shots are to be placed together and there is a flaw in the continuity, some device must be used to make the flow either less obvious, or better still, plausible. You can do this by interposing a *cutaway*, which is a shot of something else, but something which is associated with the scene in hand. As an example, you may wish to depict a tank coming to a standstill and the (Action Man) driver getting out and relaxing with a mug of tea. This *could* be done by animation, but it would be very difficult to do well; far simpler to show the tank stopping and the hatch opening followed by a head emerging. Add a cutaway to show another tank pulling up. Then show the driver of the first tank seated on his vehicle, with a mug of tea in his hand. Provided that there is sufficient time allowed between showing the man starting to emerge and then showing him seated on the outside, the ruse will be accepted. A 3 second cutaway would be no use. We must allow him enough time (within reason) for actually getting out!

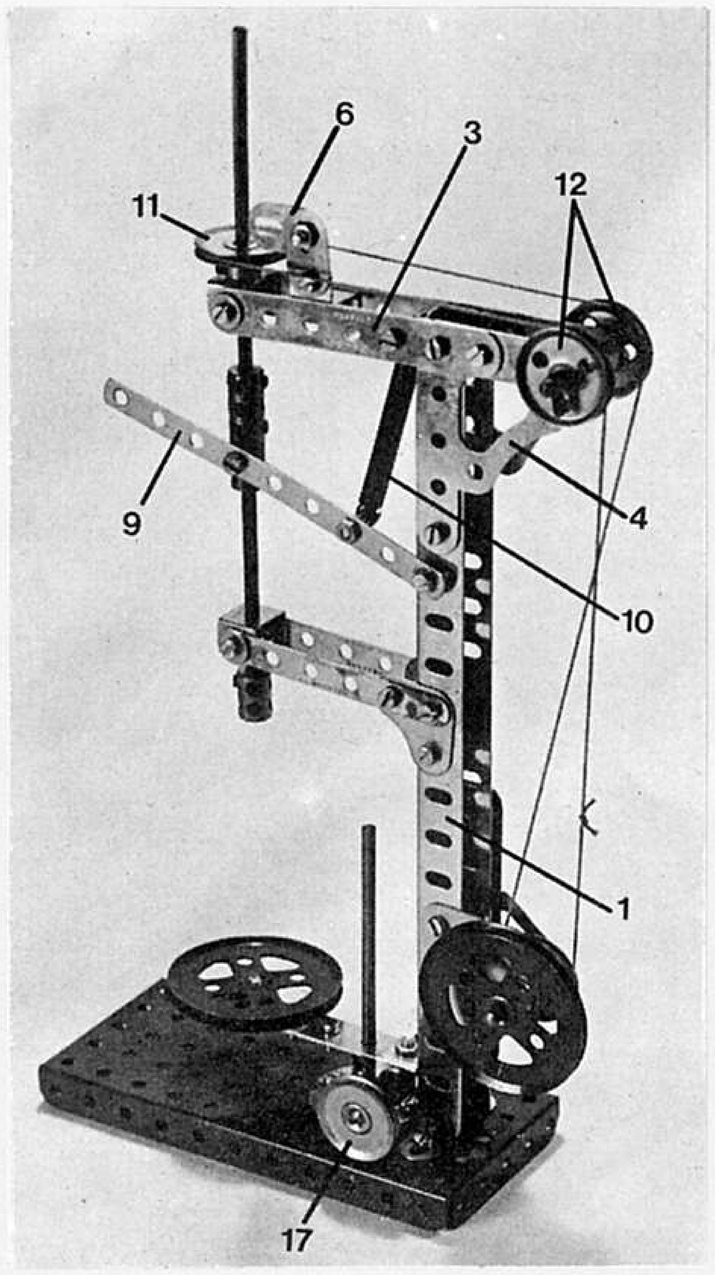
In our next issue, Geoff Pratt continues his series on cine-filming by covering the more complex subject of sound track – how to raise your films from the era of the "Silents" and bring them into the days of the "Talkies"! Read "Let Your Models Live" in the July MM.





TAYLOR'S TEKNIKIT

A year or two ago, Mr. Harold Taylor of Huddersfield, inspired by the Theme Set idea, developed for his own interest a "Machinery Multikit" – a set of standard parts specially chosen to enable interesting machine models to be built. Machines, after all, make perfect Meccano subjects and Harold proved the point by designing several excellent working models for the 'kit'. We saw them and liked them. We thought you would like them too, and so we propose to feature one model per issue in these pages over the next few issues. The exact number of parts required will vary from model to model, but all the models can be built from the contents of "Taylor's Teknikit" as we have named it. The 'kit' is not commercially available, of course, but a list of the contents is given below for those who wish to collect the parts. And the first model in the series is a....



BENCH DRILL

A Bench Drill, or a Stand Drill as it is sometimes called, is a drilling machine which, because it is fixed in place, allows much greater drilling accuracy than a hand-held drill. This model not only captures the atmosphere of a real machine, it also performs all the major operations, including an elevating work, or drilling table. Although no motor is fitted, incidentally, the model is intended for motorised operation, for which reason a 2" drive-receiving Pulley is provided.

Construction is reasonably clear from the illustrations. A 9½" U-section girder 1, built up from two 9½" Angle Girders, is attached to a 5½" x 2½" Flanged Plate by three Angle Brackets, the Bolt fixing the centre Bracket in place also helping to fix an 8-hole Bush Wheel 2 to the Flanged Plate. Attached to the top of girder 1 is a horizontal arm supplied by two 3½" Strips 3, supported by a Corner Gusset 4 and joined at the front ends by a Double Bracket 5. Bolted to one Strip 3 through its third hole is a ½" Reversed Angle Bracket, to the upper lug of which two Fishplates 6, arranged at right-angles, are bolted.

Now secured by 1" Corner Brackets to girder 1 through its ninth hole from the top are two 3" Narrow Strips, the ends of which are also joined by a Double Bracket 7. Sliding in this Double Bracket and Double Bracket 5 is a compound rod built up from an upper Keyway Rod and a lower 3½" Rod joined by a Coupling 8. Free on the Rod, immediately below the Coupling, is a Collar held in place by a fixed Collar beneath it. Pivotally attached to the free Collar by a Nut and Bolt (the Nut ensuring that the Bolt does not lock the Collar on the Rod) is a 4½" Narrow Strip 9, the inner end of which is lock-nutted to girder 1 through its sixth hole. The Narrow Strip serves as a lever to control vertical movement of the compound rod and a Tension Spring 10 is provided to return the lever to the upper position when not in use. The upper end of the Spring is locked on a ¾" Bolt in Strips 3; the lower end is locked on a $\frac{3}{8}$" Bolt held by Nuts in Narrow Strip 9. A Short Coupling is fixed on the upper end of the compound rod to represent the chuck for the drilling bit.

Using a Keyway Bolt, a 1" Pulley 11 is locked on the Keyway Rod as shown. The Rod is free to slide in the boss of the Pulley, but the Keyway Bolt ensures the the Rod and Pulley turn together. Fishplates 6 act as a "stop" to prevent the Pulley moving vertically with the Rod.

Two 1" Pulleys without boss 12 are held by Spring Clips on a 2" Rod journalled in the corner holes of Corner Gusset 4, while a 1" Pulley 13 and a 2" Pulley are fixed on a 1½" Rod journalled in the apex holes of two Flat Trunnions bolted to girder 1 in the positions shown. A cord driving belt runs around Pulley 13, over Pulleys 12 and around Pulley 11, while external drive would be taken to the 2" Pulley.

An elevating work table is next provided by another 2" Pulley14 bolted to a 2½" Strip, to the underside of which a Crank 15 is secured. Two Angle Brackets, arranged to form a double bracket, are bolted to the inner end of the Strip, the free lugs of the Brackets serving as journals for a 2" Rod held in place by a Collar and a ½" Pinion 16. A 1" Pulley 17 is fixed on the opposite end of the Rod. The completed unit locates and slides on a 3½" Rod fixed in the boss of Bush Wheel 2. Pinion 16 meshes with a 3½" Rack Strip 18 attached to, but held away from, girder 1 by Nuts on two ½" Bolts, secured to the side flange of the girder by further Nuts. The height of the table is adjusted by turning Pulley 17 which in turn "winds" Pinion 16 up or down the Rack Strip.

PARTS REQUIRED

2 – 3	2 – 20a	1 – 42	3 – 111a
1 – 5	3 – 22	1 – 52	1 – 111c
2 – 8a	2 – 22a	3 – 59	1 – 125
2 – 10	1 – 24	1 – 62	2 – 126a
2 – 11	1 – 26	1 – 63	2 – 133a
5 – 12	2 – 35	1 – 63d	1 – 230
2 – 16	35 – 37b	2 – 108	1 – 231
2 – 17	43 – 37c	1 – 110	2 – 235a
1 – 18a	7 – 38	1 – 111	1 – 235d
		1 – 40	

TAYLOR'S TEKNIKIT CONTENTS LIST

Part No.	Qty	Part No.	Qty
2	4	53a	2
3	2	59	6
5	10	62	1
8a	2	63	1
9	2	63d	1
10	4	64	1
11	2	80c	1
12	8	108	2
12b	2	110	1
15b	1	111	2
16	3	111a	2
17	2	111c	6
18a	2	115	1
20a	2	125	2
22	3	126	2
22a	2	126a	2
24	2	133a	2
26	2	160	1
27a	1	188	4
27f	2	189	4
32	1	190	2
35	2	194a	2
37b	64	194c	2
37c	64	214	2
38	30	230	1
43	1	231	1
48a	6	235a	2
51	1	235d	2
52	1	235g (1½" N.S.)	2

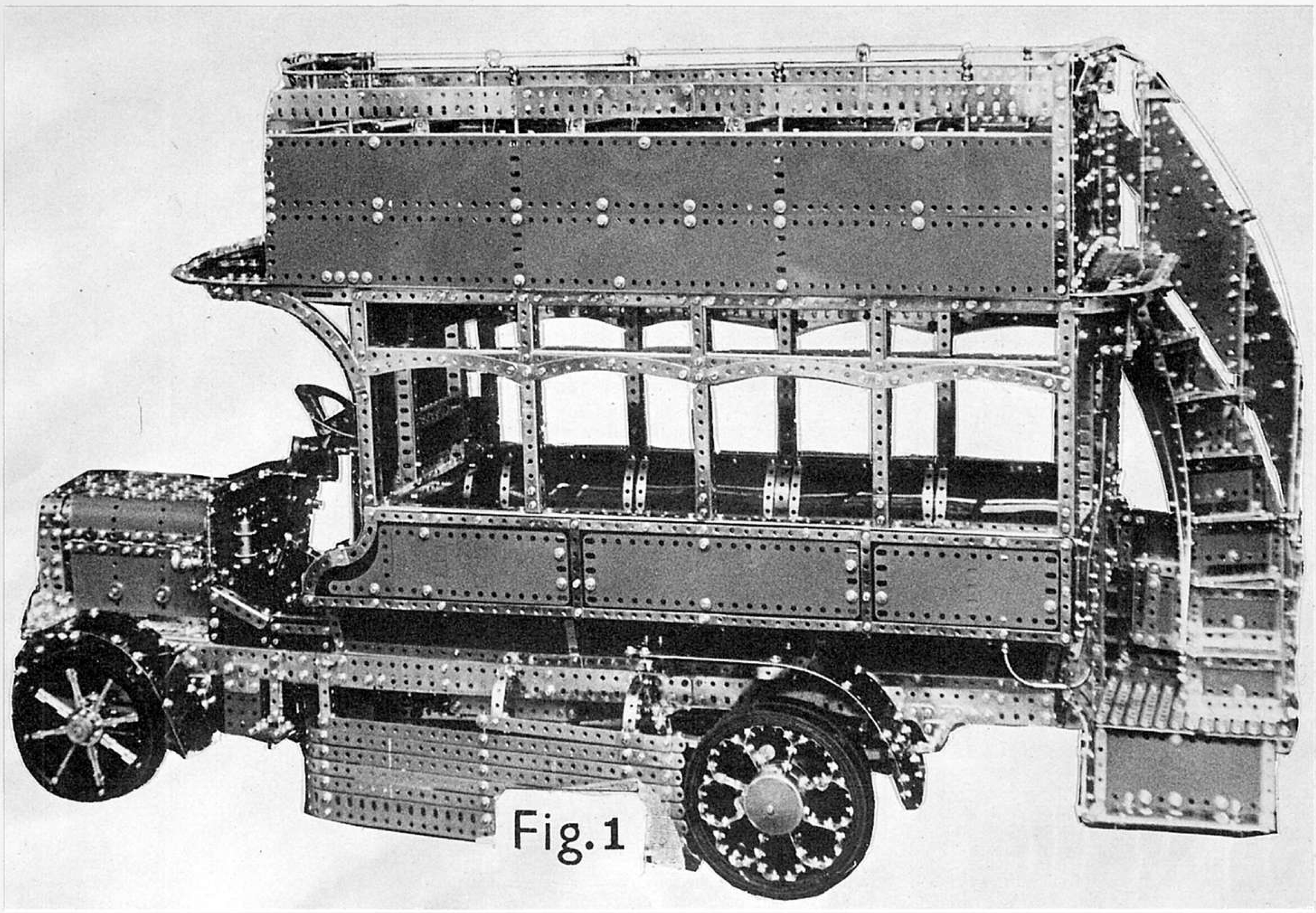


Fig. 1

LONDON GENERAL OMNIBUS

A Veteran Scale Model of Fine Appearance

Built by Peter Matthews

Described by Bert Love

Not only is Peter Matthews a leading authority on the Meccano system from its date of origin and an ardent collector, he is also an outstanding modeller in his own right. The first-class model of a veteran London "GENERAL" omnibus featured in this article bears witness to his skill and is just one of dozens of top class models built by members of the Transvaal Meccano Guild for one of their many public exhibitions.

There is no doubt that Peter's bus is the largest scale model of its kind which has ever been published in the Meccano Magazine, the 5½" Circular Girders on front and rear wheels begin to give the reader some idea of its size. In fact, if Meccano Axle Rods and Handrail Couplings set the scale, then a model of this size is called for to maintain proportions. These veteran buses saw sterling service both in a military and civilian capacity during and after the First World War, moving thousands of allied soldiers across France and Belgium and millions of passengers in the London area which is Peter's native region. Nor is this his first attempt at the veteran "GENERAL" as Fig. 2 will show. Some ten years ago, Peter produced a replica of a prize-winning model first entered for a Meccano competition by the late Stewart Wilson almost sixty years ago! He showed it at a U.K. Meccano Club meeting and had built the model from faded photographs of the original and used genuine vintage all-nickel parts of the old Meccano days.

An illustration of the model, taken by the author, is included here to underline the great contrast in model-building standards between the two models. This in no way detracts from the charm of the simpler model, built by Stewart from a modest outfit and a limited range of parts. It still captured the outlines of this early bus very successfully and included clockwork drive, steering, brakes and many structural features of the prototype.

No building instructions are available for Peter's model, but the advanced constructor will glean much from the 'open' construction of the bus and should learn more from the general observations in this article. Choice of colour schemes enabled the model to be reproduced in red, silver and black, as the prototype's original livery was commonly found in service with the London General Omnibus Company. It is actually the 'B' type bus and Fig. 1 shows the model on completion of the structural work. Based on a 'squared-up' chassis of long Angle Girders in deep section by overlaid Flat Girders, the model has a length of something over 3ft. 6in., or above 110 cm.

Semi-elliptic springs starting with 7" Strips secured by right-angled Rod and Strip Connectors to chassis points at the rear are used for the back axle, a swinging shackle being mounted on the forward end of the spring just inside the pedestrian 'fender' arch. For the front springs, the position of the swinging shackle is reversed. Main chassis members remain at the width of the driving cab floor, at 5½", but the passenger compartment widens to 9½" giving a sloped-up overhang above the rear wheels. This permits bench seats to be fitted on the lower deck, running fore and aft with red Plastic Plate 'upholstery' right the way along. Each passenger window has a 5½" width with square pillars of paired 7½" Angle Girders, forming closed box construction, running between the horizontal 24½" Angle Girders in channel section.

Window heads are box girders again, 5½" long, set between the vertical 7½" pillars and finished with 5½" Curved Strips, bolted on centrally and secured at their ends by Fishplates which make allowance by their slotted holes for the fact that a 5½" Curved

Strip will not match up with 11-hole spacing. Much of this information is obvious from a close study of Fig. 1 where, again, it will be seen that the three sets of twin 9½" Flexible Plates, overlapped by one set of slotted holes at two joins, gives an overall length to the top deck of 27½", the forward part of the upper deck being cantilevered over the driver's cab.

Passengers had to be 'high steppers' to negotiate the platform and stairs of the 'B' type omnibus as the high 'risers' on the stairs were not really convenient for the long hobble skirts fashionable at the time. However, most of the ladies who did make use of the motor omnibus at the time preferred to ride inside; the unprotected upper deck was the ruin of many a hat for the more adventurous females! The main boarding step on the model is 5½" wide and 2½" deep, the curving staircase being 2½" wide with 2" 'risers'.

Fig. 3 features Peter Matthews alongside the driver's cab and this gives the reader a further indication of the size of the model. This illustration shows the bus on completion with its number 11 route indicator and the destination sign boards along the sides. These bear the legends HAMMERSMITH - WALTHAM - VICTORIA - STRAND - LUDGATE CIRCUS - BANK, while the upper deck board shows SHEPHERDS BUSH - LIVERPOOL St.

Probably the most outstanding features of this model are the unique front and rear wheels, built up with great pains to simulate those of the prototype. Circular Girders are used for all of the wheel rims and the eight spokes required for the front wheels are short Axle Rods set in pairs of Rod and Strip Connectors bolted to 8-hole Wheel Discs and Bush Wheels at the hub and to the holes of the Circular Girders at the rim. Either heavy rubber driving belts from a vacuum cleaner or multi-layers of black fabric adhesive insulating tape may be used for the solid tyres of the prototype.

Of particular interest is the 'fretwork' construction on the rear wheels, carried out in Obtuse Angle Brackets and Fishplates to reproduce the cast iron ornamental wheels of the original 'B' type omnibus and Peter has made a major break-through with his unique assembly. Rear wheels were twin on the original, with a slight gap between them. In the model, this gap is set by the width of a Collar into which a standard Bolt is screwed to hold the Obtuse Angle Bracket forming the first part of the 'curve' of the ornamental casting. Two Boiler Ends provide each hub of the rear wheels and the continuation of further Obtuse Angle Brackets and Fishplates are secured to four points on the inner Boiler End by Angle Brackets and by further Angle Brackets to the pierced holes of a 3½" Gear Ring locked on to a 2½" Gear on the back axle.

Main drive is by an electric motor under the bonnet through a simple clutch and typical 'crash' gearbox of the period, the outboard gear lever being clearly seen in Fig. 3 together with the hand brake. Lamps, dashboard fittings and driver's seat are all fabricated from standard Meccano parts and a comprehensive set of handrails is provided from platform to the full extent of the top deck by the skilful use of standard Axle Rods, Crank Handles, Flexible Coupling Units, Handrail Supports, Handrail Couplings and Right-angled Rod and Strip Connectors. Plain Rod Connectors help to ensure a smooth run of the handrails. Narrow Strips provide 'scraper' bars on the platform floor.

In Fig. 3, just to the rear of the driver's cab and below the overhang of the lower deck is a toolbox with hinged lids. The bonnet cover in Flexible Plates is double hinged so that the 'engine' can be inspected or serviced and a curve 12½" Flat Girder provides a rugged frame for the massive radiator. The final touch is given by the permanently-hung starting handle at the front made from Threaded Pins, Rods and Short Couplings.

As a glance at the illustrations will show, Peter has produced an excellent reproduction of the chosed subject and it is interesting to note what served as his main source of reference. It was, in fact, a small-scale model which can be seen, in white silhouette, in the foreground of Fig. 2. A beautiful up-scaling job!

Fig. 1 left, Peter Matthew's "B" type London General Omnibus of World War I vintage as it appeared upon completion of the structural work.

Fig. 2 right, Peter's first attempt at a 'General' was in 1969 with this version, in vintage nickel parts, of the late Stuart Wilson's original prize-winning model of 1916. Compare the advances in modelling with Figs. 1 and 3.

Fig. 3 below, Peter Matthews pictured with the finished model. Note the unique ornamental construction of the rear wheels.

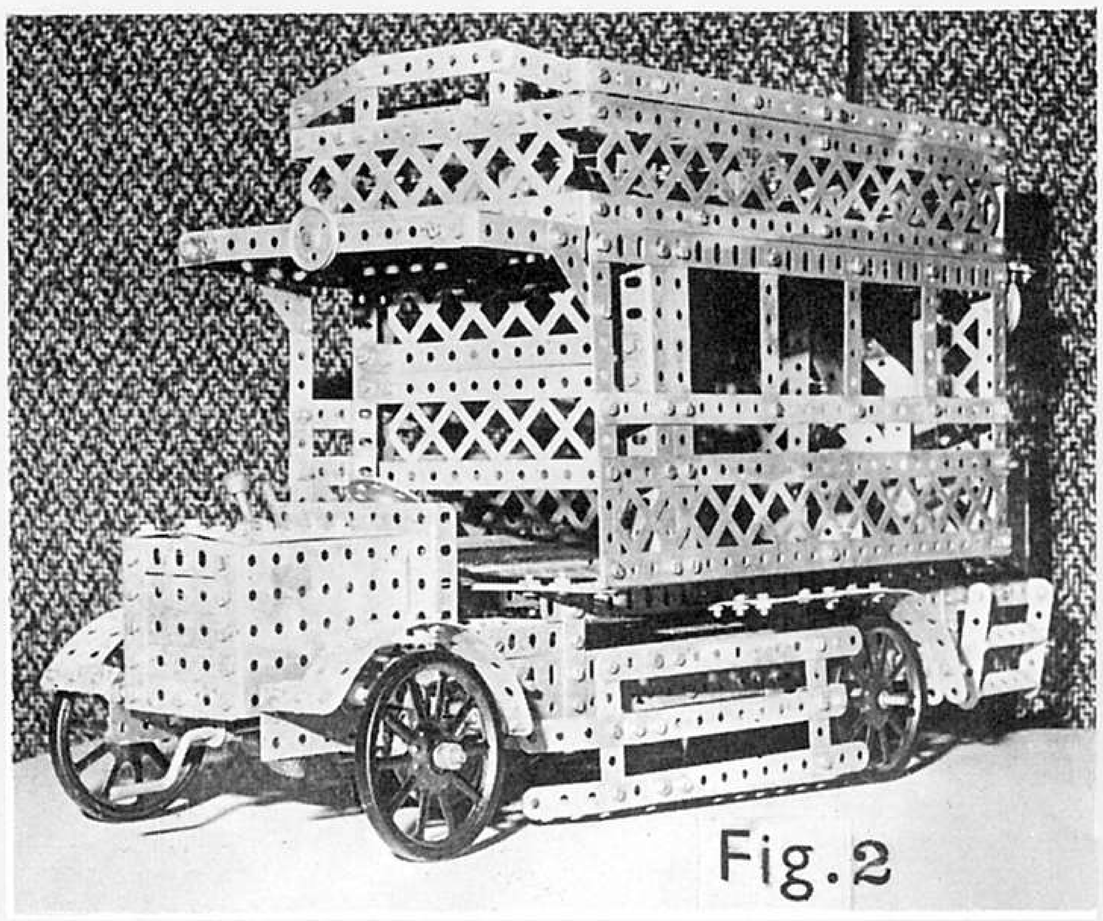


Fig. 2

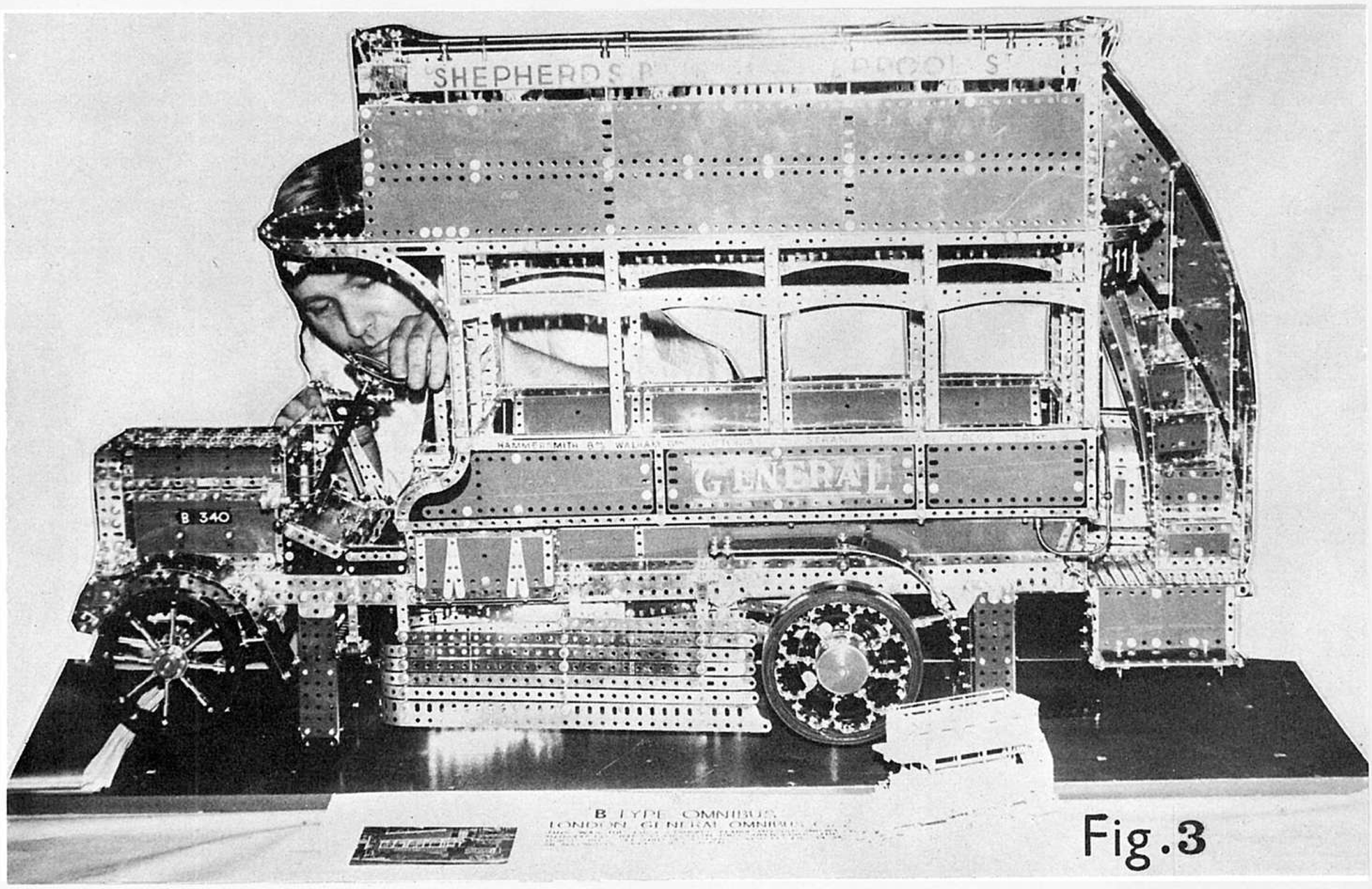
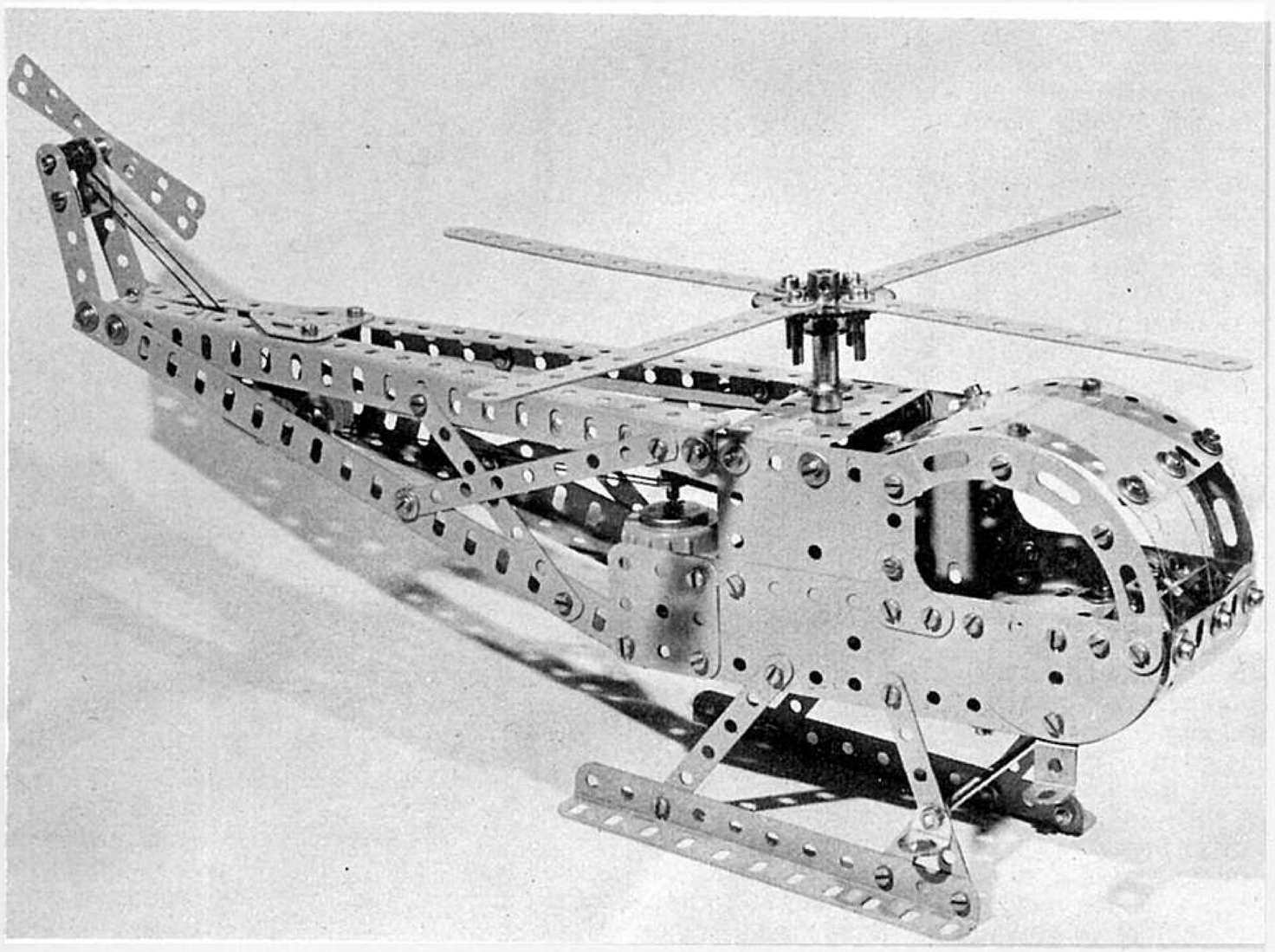
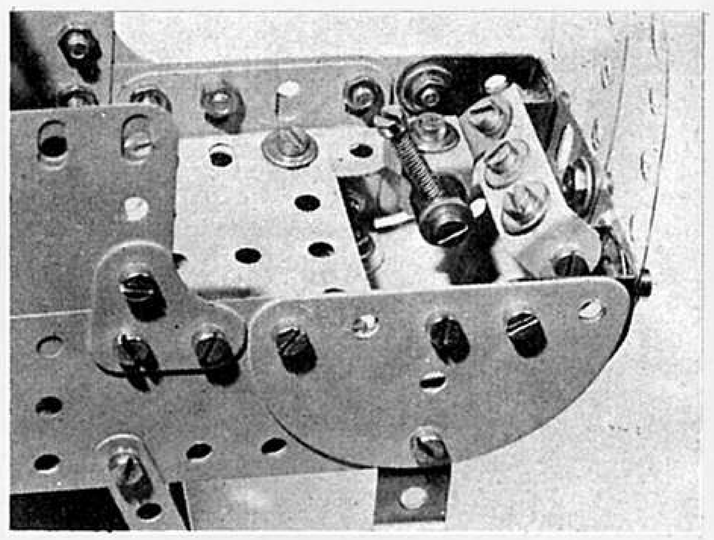
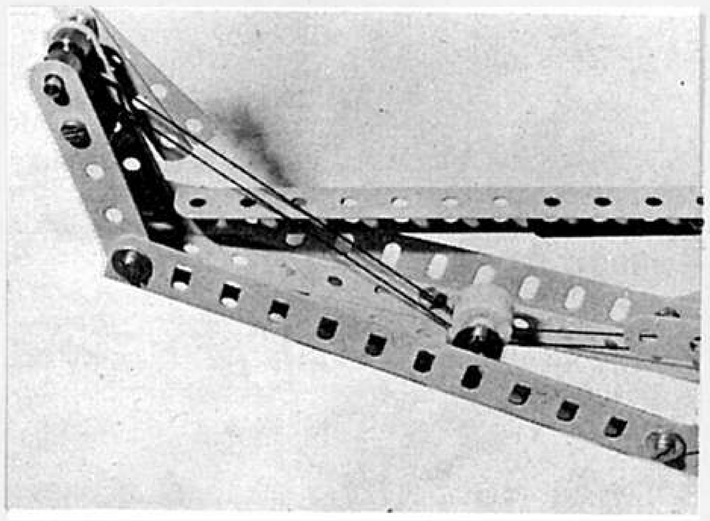


Fig. 3







CRANE KIT TAKES OFF!

A working model from an Engineering Drawing by W.R.Hinson

"If you cannot photograph it, make a good working drawings of it". This is the sound editorial advice which Mr. Hinson of the Stevenage Meccano Club took when he designed this excellent working model Meccano Helicopter which can be built from the contents of the Crane Set. As a retired engineering draughtsman, our contributor has provided us with a first-class working drawing which we are pleased to reproduce here as an example of how the real engineer has to work from scale drawings. Each of the drawings are related in what is known as "First Angle Projection" which means that each view is 'projected' from an adjacent view. For instance, view A is known as a side elevation because, if a person was standing at the side of the model, looking at it square on, this is the view he would see.

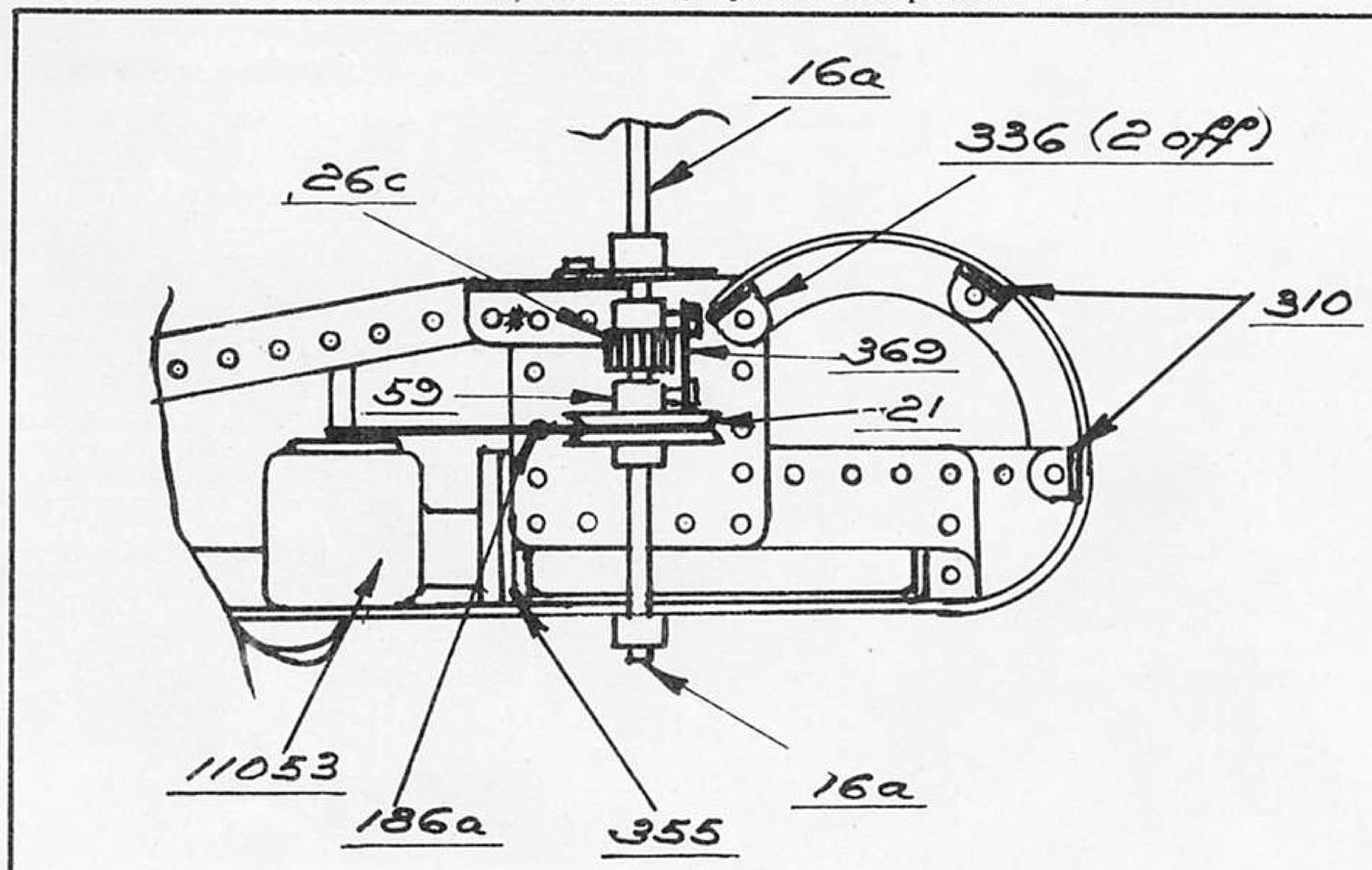
To obtain view B, known as the 'plan' view, the dimensions of A are simply carried down the drawing paper and the object is rotated through 90° to obtain the 'plan' and we now see the top view sometimes known as a 'bird's eye view'.

If details of the object are not fully revealed at this stage, an underview or 'under plan' is required and this is shown in view C. The reader should notice that a view from the nose of the helicopter is not given (such a view would be called an 'end elevation'), but all of the required information can be deducted from the first three views. Even at this stage, internal detail may be hidden so the fourth view, known as a 'sectional' view, is provided, in the case of the Meccano Helicopter, to show the internal drive arrangements of the Crane Set Motor. As the set does not possess a long Axle Rod, a compound shaft for the motor blades is made by joining up the two 2½" Rods by a 'coupling' made from a Fishplate locking a Collar to the boss of a 19t Pinion, the lower half of the Pinion bore being used as a 'sleeve' for the upper end of the lower 2½" Axle Rod.

Printed below is the full list of parts for the Crane Set numbers and standard Meccano part numbers (thanks to Mr. Hinson), the latter provided so that readers who do not own a Crane Kit may complete the model using standard parts, assuming, of course, that they possess them! The whole thing makes a change from written building instructions; we hope you like the presentation.

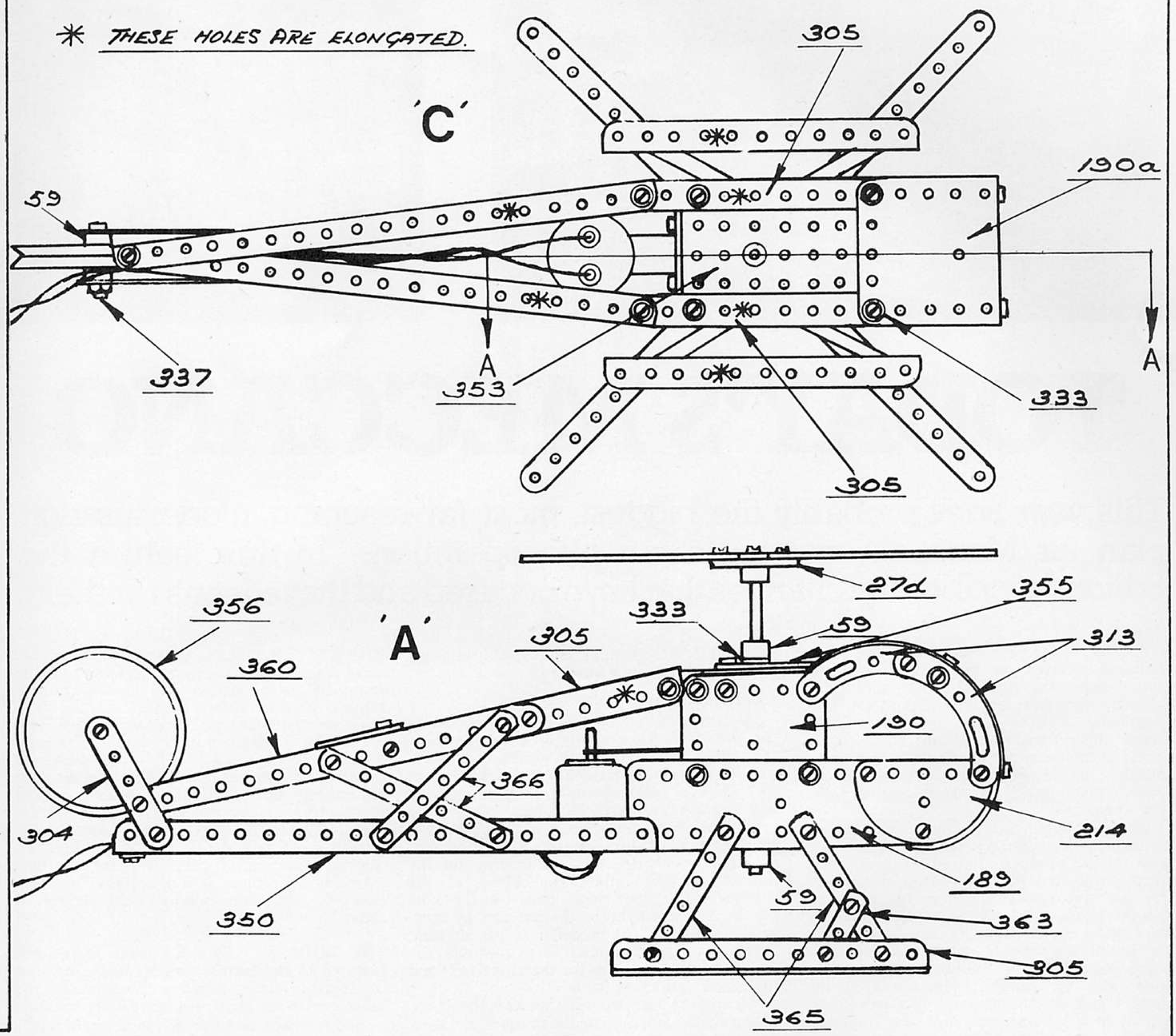
SCHEDULE OF PARTS

No. OFF	CRANE SET PART No.	STANDARD MECCANO PART No.
2	16a	16a
1	21	21
1	26c	26c
1	27d	27d
4	59	59
2	355	74
1	126a	126a
1	186a	186a
2	189	189
2	190	190
2	190a	190a
2	193	193
2	214	214
4	302	2
2	304	5
6	305	9
2	310	48a
4	313	89a
1	328	51
80	329	37a
80	330	37b
28	333	38
2	336	12
1	337	111d
2	350	8a
1	353	53
1	356	19b
2	360	1b
2	363	235g
4	365	235a
4	366	235b
1	369	10
4	625	–
1	11053	–



SECTION A.A.

Pictured far left is a general view of the completed Helicopter. Left top is a view of the cockpit showing the pilot's seat mounted on 2" Angle Girders, instrument panel and joystick. Lower left is a close-up showing double pulley guide for fantail drive. Two ½" Pulleys are mounted on a ¾" Bolt lock-nutted to one Angle Bracket and supported at the far side in a second Bracket.







TODAY'S MECCANO

This year sees probably the biggest, most far-reaching modernisation plan for Meccano ever to be put into operation. In this feature the Editor describes the changes that have occured and the reasons for them.

Shortly before Christmas, many U.K. modellers received an unexpected hint that great changes were coming to Meccano. The Company was featured in a nationwide T.V. programme – "The Risk Business" – and, though the programme did not cover fundamental system-changes in depth, it did show enough for the observant Meccanoman to deduce that significant developments were close at hand.

Those developments are here. Great changes are taking place; changes which we believe are good for the product; indeed, changes which might prove vital for the continuance of the Meccano system. It is recognised, however, that the people who will be most affected by the changes are existing Meccano users, with the accent on *users* – the enthusiasts who regard Meccano as a serious hobby medium; those who are genuinely interested in the product and in the company; those who, as part of their interest, read Meccano Magazine. The Company is, therefore, especially anxious to give readers, here, a full and frank description of "Today's Meccano", with the background reasoning behind it.

BACKGROUND

It is a fact that complete sets account for the overwhelming majority of Meccano sales. It is also a fact that the overwhelming majority of sets are sold, not to enthusiasts, but to (or for) children, most of whom are not, nor ever will become as closely involved with, or as proficient at, model-building as the enthusiast. Indeed, most regard Meccano as a good toy.

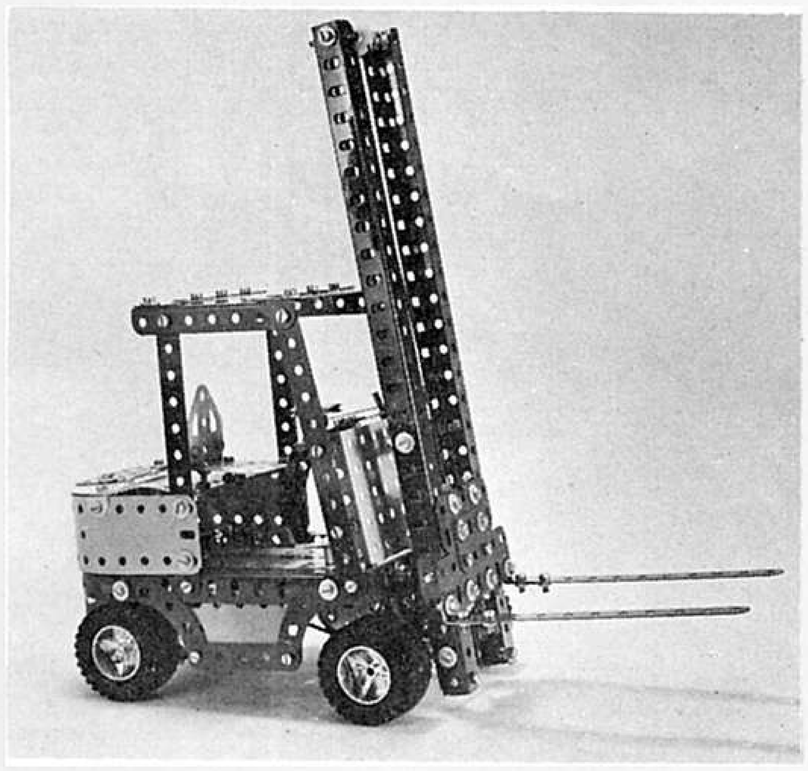
This, of course, has no bearing on the non-toy, serious hobby capabilities of the system, but it does mean that it is the mass toy market which keeps the product in existence for the serious modeller. This, in turn, means that, if the product is to continue, the Company *must* cater for the mass market – and the mass market goes for sets.

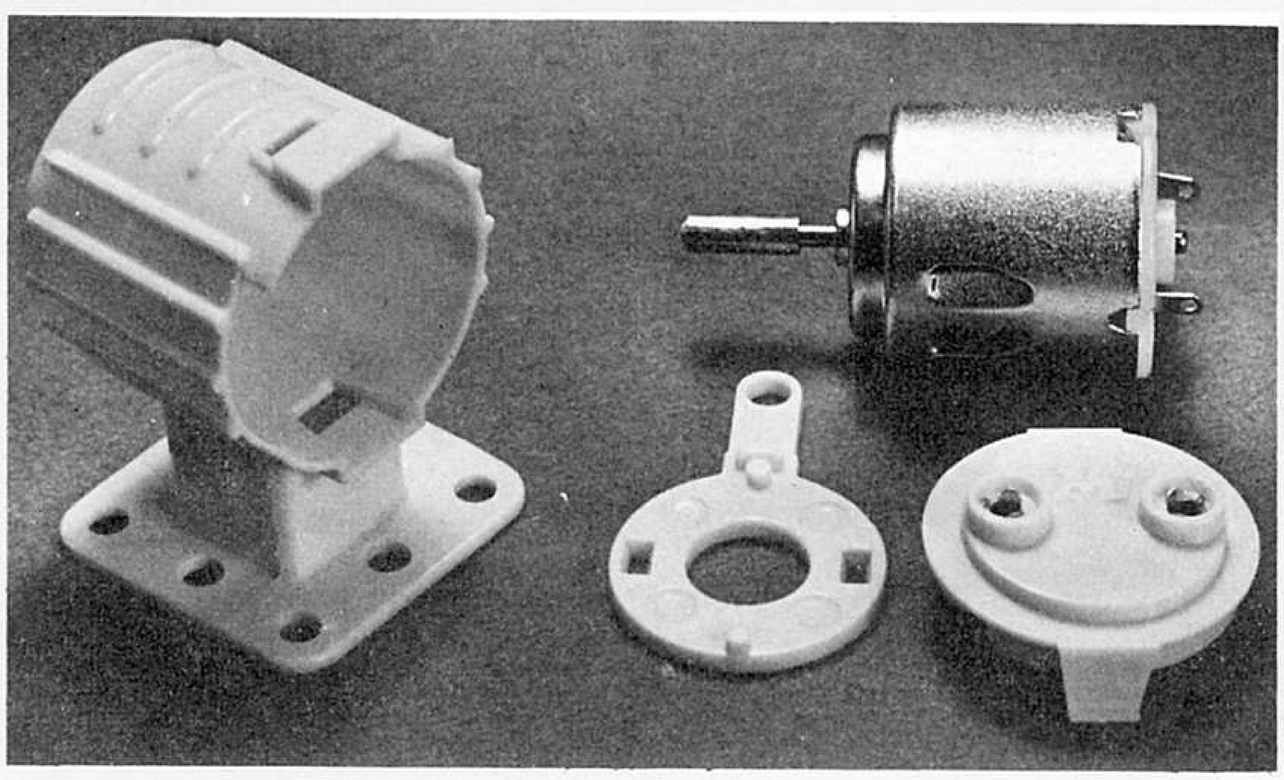
During the past two years we have thoroughly researched Meccano – the product, the user, the dealer, in fact the whole market. This research revealed many areas of improvement:

THE SYSTEM: The various sets in the system were found to be far from ideal for today in terms of parts-selection and modelling capabilities. Minor contents changes over the years have been done more to accommodate new parts than to improve or up-date fundamental model-building scope. The quantities and selection of *types* of components in a set were remarkably similar to an equivalent set of maybe 40 years ago and thus the sort of model that could be built was in many cases limited to the same period. It is possible that the *original* selection of parts was not the best even for the time; it was certainly not the best for the more sophisticated styling of today.

THE MODELS. By this I mean the models featured in the Instructions Manuals. Because of traditionalistic thinking founded in the same earlier age that selected the set contents – and perhaps *because* of the set contents – the Manual models have tended (with exceptions of course) to fall far short of the best

Pictured at the top of this and the next page are examples of this year's new Meccano Sets with their striking packaging. Below left, a Fork Lift Truck built with the new No. 5 Set. A solid, well-proportioned model, it features working steering and lifting stacker forks. Below right, the component parts of the Junior Power Drive Unit Mk. 2 (1½–4½ volt D.C. electric motor) which is contained in all the Standard Sets except the No. 1 Set. The motor is supplied in unassembled form for self-assembly: an extremely easy operation.









engineering possibilities of Meccano. There have been wheeled vehicles of doubtful appeal, rather ricketty structures of the crane and bridge variety and machinery which, although along the right lines, has failed because the right parts have not been in the set. Cranes, bridges, engineering machines, etc. *are* ideal subjects for Meccano, but only if decent, preferably working reproductions can be built. Wheeled vehicles are fine, but basic realism in a modern context is essential.

THE RANGE. This is a vital area which affects the entire viability of Meccano, yet I doubt if the average enthusiast has really had occasion to give it much thought. Up to last year, with standard sets, conversion sets, motorised sets, Multikit sets and so on, the Meccano system consisted of no less than 32 *separate, individual boxed outfits* most of which were pretty large in box size. It's not hard to realise that no dealer, save a rare specialist, was able, let alone prepared, to keep the full range in stock – especially considering that a sensible quantity of *each* stocked set is required. As a result, large numbers of potential customers couldn't find what they wanted at the right price, so bought another product, or else bought the wrong set for their needs and were dissatisfied. Thus, a certain amount of goodwill as well as a good deal of potential revenue was lost.

PACKAGING. This, also, was shown by the research to be in need of change. At the beginning of 1977, we had introduced new box lids for main sets 1 – 7 showing children – girls as well as boys – playing with models, but some of the other sets remained in the old, dull blue packaging. Then there were also the Multikit sets in their different packaging. Result: an unappealing hotchpotch of various designs. And, to make matters worse, the new child-illustrated packaging we had thought such an improvement proved quite the opposite. With the models being so small in relation to the children, we seemed to be selling children, not Meccano! Also, it turned out in practice that boys are deterred from a product if girls are shown using it! (In contrast, girls are *not* deterred by illustrations of boys with a product).

MECCANO 1978

So, what changes have been made for 1978?

First of all, the Meccano set range has been reduced from 32 to 16 outfits, these comprising the Pocket Set, five Standard Sets, two Extension (Conversion) Packs, four Theme Sets – Army, Highway, Combat and Crane (the previous Multikits) – a Master Mechanics Set, the Giant No. 10 Set, a Clock Kit and a Power Pack. The Master Mechanics Sets is an up-dated version of the previous No. 9 Set.

You will appreciate from this that the most radical change is to the standard, "progressive" series, now with only five Sets. However, we have not simply kept five sets from the 1977 range and dropped the others; *new sets 1 – 5 bear no relationship whatsoever to the 1977 series.* The new sets have been developed entirely from scratch, with no reference at all to the previous sets. They still contain standard Meccano parts, of course, but the selection and quantity of parts bear no relationship to previous sets, other than by coincidence.

Similarly, the Extension Packs apply only to the new range. As mentioned, there are now only two of these: Pack S and Pack L. Pack S converts Main Set 1 *OR* Main Set 2 into Set 3; Pack L converts Main Set 3 *OR* Main Set 4 into Set 5. Because of the bi-outfit ability of the Extension Packs, incidentally, something more than the required set will result when an Extension Set is combined with the larger of its two associated outfits, e.g. Set 2 + Set S = Set 3+. This is not a problem, of course. It simply allows that much more model-building scope.

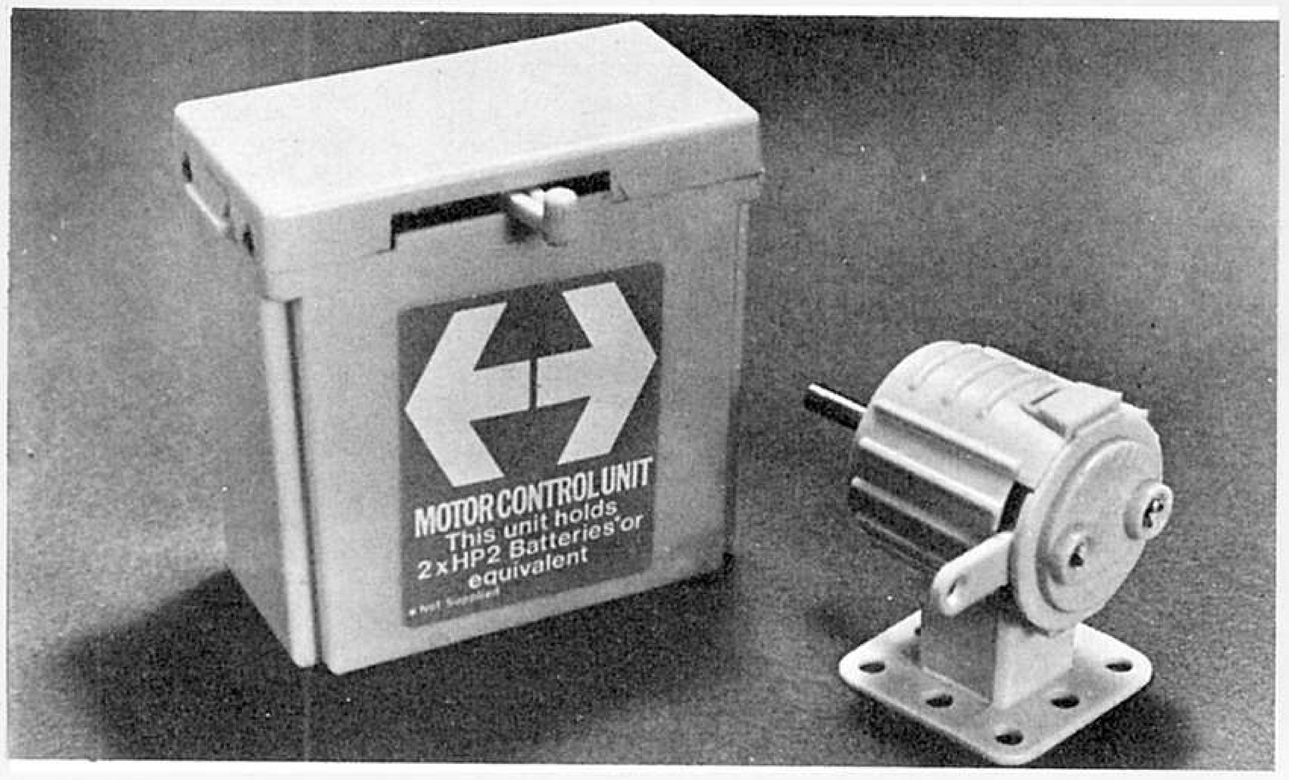
A Contents List for the new sets is given on Page 63 and it will be seen from this how different from the old are the new. Much better, more *useful* selections of parts are provided, particularly for engineering-type models. For instance, gears are now included in Set 2 upwards; previously they did not appear until Set 6. Similarly other useful parts are now used, like the Channel Bearing, Corner Angle Brackets and Face Plate.

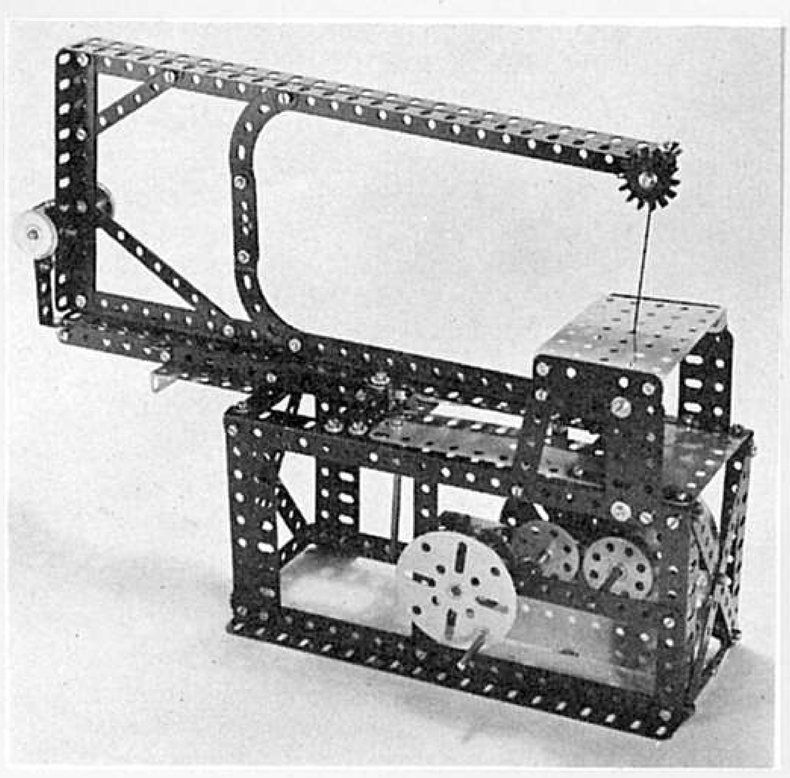
MOTORISATION

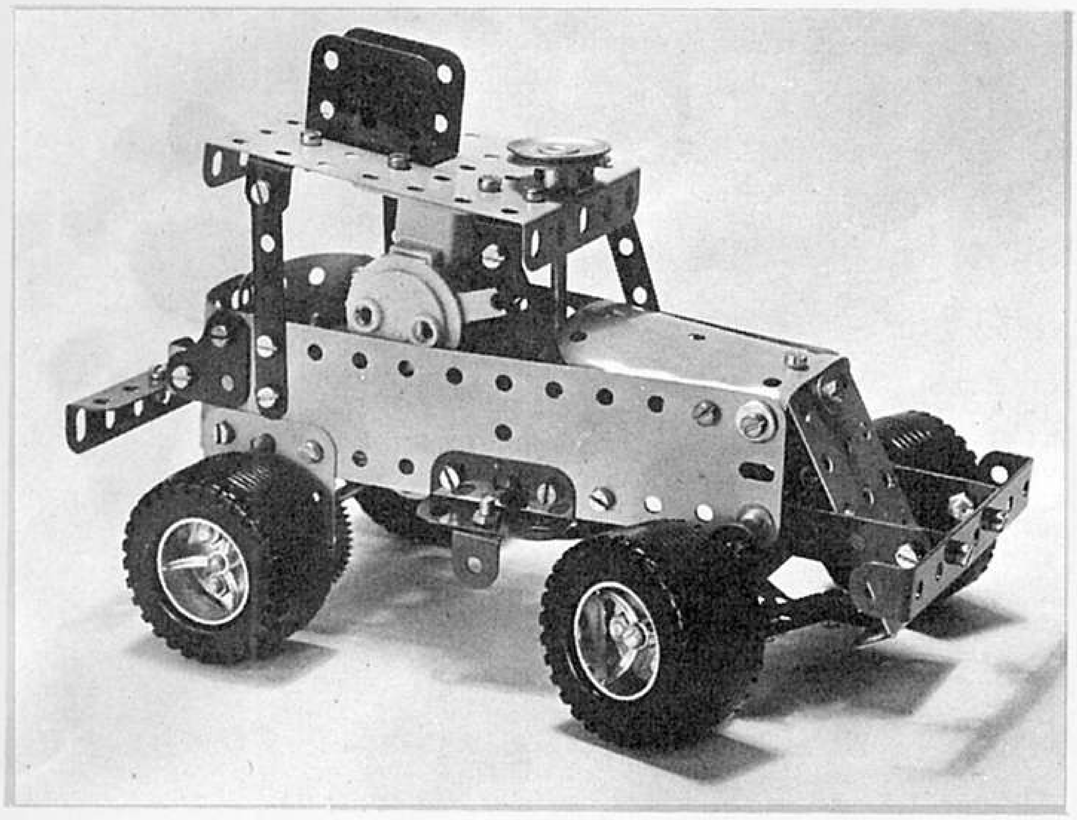
Perhaps the most important innovation for today however, is motorisation. All the standard Sets, except the No. 1 Set, now contain an electric motor and battery box! The motor used is the 1½ – 4½ volt D.C. unit included in the Crane-building Set and its presence adds a whole new appeal to the all-important first-time purchaser. (Incidentally, the motor and battery box are not contained in Extension Pack S for Set 1 converters, but they are included in the new Power Pack which makes an ideal gift).

Naturally, with new Sets come new Manual models and this is where the advantages of the new parts and motors speak for themselves. The models are substantial, without being excessively complicated. They are realistic. They are modern in style where this is required, and, particularly important, they are motor-powered "working" models. We all know that the movement of working features adds great appeal to any Meccano model, especially in the eyes of the younger age groups – the groups, →

Below left, the Junior Power Drive Motor Mk. 2, assembled, and the Battery Control Box which is also supplied in all the Standard Sets except the No. 1 Set. The Battery Box accommodates two HP2 or equivalent dry batteries and gives stop/forward/reverse control, as also does the motor itself. Owners of a Crane-building Set will recognise both the motor and battery box as the equipment supplied with their outfits. Below right, this Fret Saw serves as another example of a realistic and interesting model from the No. 5 Set.







Guaranteed to appeal to the modern young modeller, a Stock Car built from a new No. 3 Set. Note the new wheel and how it transforms the appearance of the model. Note, also, the presence of parts not previously found in the smaller outfits.

←

remember, who buy most Meccano Sets.

The Manuals themselves follow the modern step-by-step photographic approach to assembly, enabling builders to actually see what should be done as they go along in stages.

NEW WHEELS

No standard Meccano Manual would be complete without some wheeled models. Wheeled models are provided, therefore, but their appeal is infinitely greater than anything similar before them. This is achieved largely in two ways: by choice of modern, interesting subject, e.g. Stock Car, Racing Car, etc., and by a vastly improved wheel.

With any wheeled model, the design of its wheels can determine the overall impression given: a poor old-fashioned wheel can make an otherwise good construction into a poor old-fashioned model. The existing wheel was old-fashioned by today's standards, so a brand new wheel has been developed. The finest Meccano wheel ever, in my opinion, it comes in three parts – a wide-profile plastic tyre, a strong die-cast metal wheel centre, and a 1" diameter Bush Wheel, originally from the Electrical Set. In true Meccano style, the three sections can be self-assembled into one superb unit, the Bush Wheel providing the axle fixing point. A glance at the Stock Car in the accompanying photograph will show just how great an impression the new wheel makes – it's fantastic!

NEW COLOURS

Another area of change which will be of more-than-average interest to our readers is in colour. Important colour-changes have taken place, or rather it would be more accurate to say shade-changes. Last year the general Meccano colours were silver (zinc plating), blue and yellow; now they are primarily just blue and yellow. *However, the shades of blue and yellow are different* to the old, the new colours being darker in shade to give better definition to the models. The old mixture of colours, especially the bright-plated Strips and Girders, tended to break up the form and outline of models; to act rather like camouflage. The new colours bring far more solid shape to the models.

In general terms, most of the parts previously zinc-plated are now blue, with the exception of the small parts – Angle Brackets, Fishplates, Nuts and Bolts, etc. – which are brass-finished. Also, the various Flanged Plates, which were blue, are now yellow.

It is accepted – and regretted – that the colour-change will affect the enthusiast more than any other customer, but, unlike the demise of the old red/green period, this change at least is not excessive. Indeed, new-colour parts might well complement the older colours in many models. However, our research made it quite clear that the new colours showed off the models to better advantage and held more appeal for the mass market.

PACKAGING

Finally, we come to packaging. Armed from research with the knowledge of what was wrong with our existing packaging, we developed bright new packaging carrying clear, strong "Meccano" branding. (The research had shown that Meccano was one of the most well-known and respected brand names in the world, yet we were not making full use of it; we were not "pushing" it before the customer). We also did away with the child illustrations and too many model illustrations. Instead we now devote most of each box front to a large illustration of one particularly interesting model from the Set so that a prospective customer can really see the sort of thing he is buying. Father knows Meccano and what it can do; the modern child might not know this. So the new packaging is designed also to appeal directly to the child – to show him that Meccano is the exciting product he wants.

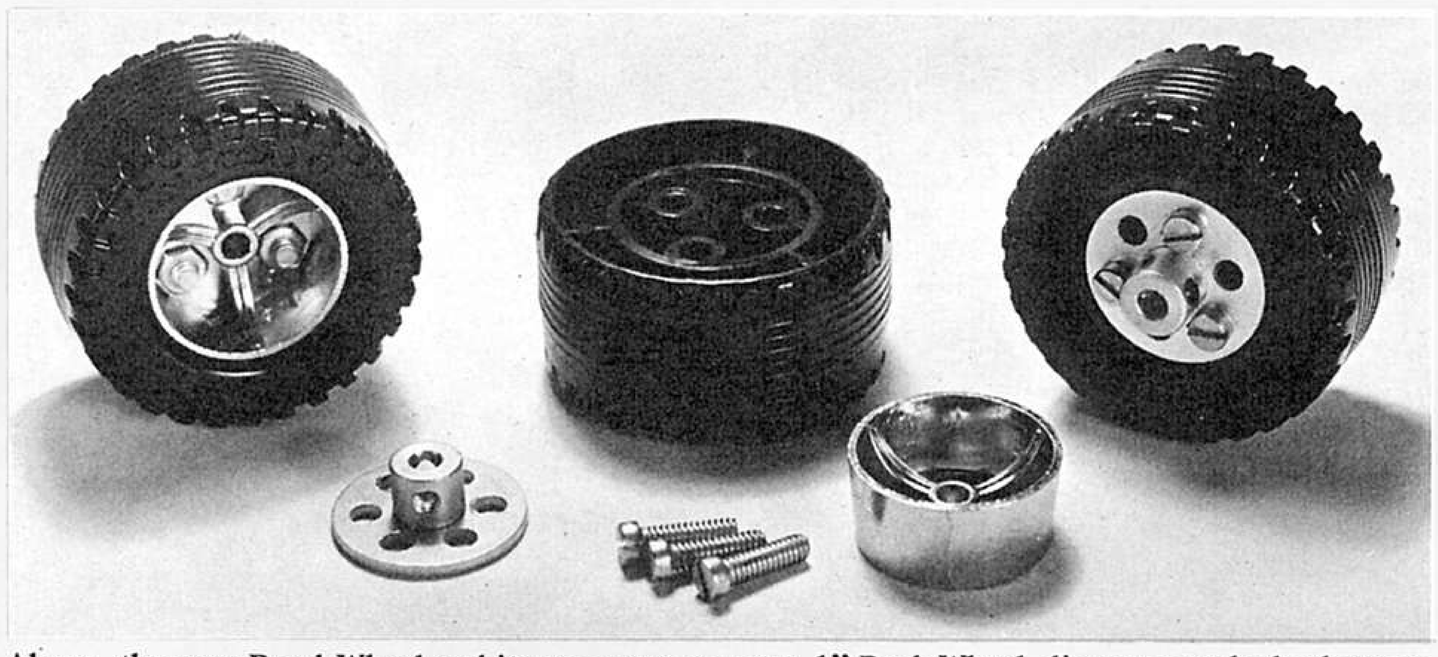
The large illustration allows him not only to see an example of the model, but also to see the constructional make-up of the model, i.e. that it is built from bolt-together miniature engineering components. The possibility of misunderstanding is thus greatly reduced. Small illustrations of other models from the Set appear round the box edges so that, once the main illustration has attracted and informed the customer, he can see how much more can be done with the same Set.

A similar packaging approach, though using different background colours, runs through the whole system, including the Theme Sets. The latter were previously identified as Multikits, but the "Multikit" title has been dropped as it tended to separate the kits from the general Meccano image. All the Sets are Meccano Sets – part of the same system. So they all should be recognisable as such and this is best achieved by a uniform packaging style, clearly identified. Today's Meccano has all of this.

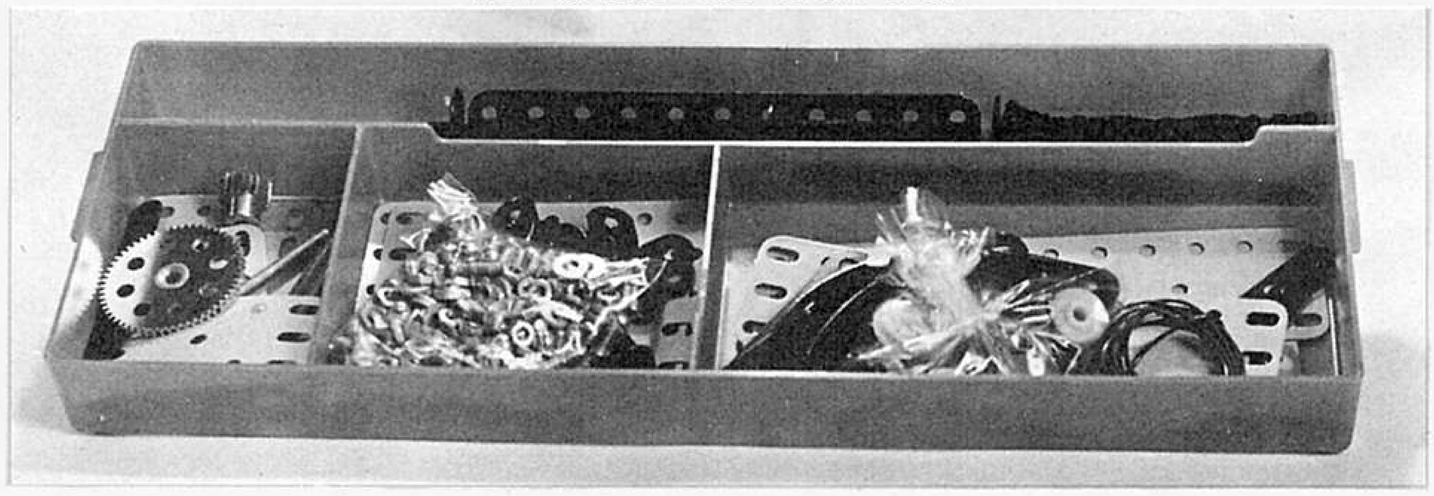
STORAGE TRAY

The new Standard and Theme Sets include another innovation for the system in the shape of a strong, partitioned storage tray manufactured from tough, rigid plastic. The Sets are still sold in the recessed expanded polystyrene trays, these offering the best "displayability" for the parts and, most important, protection during transit. If simply packed loosely together, the parts, being mostly metal, would scrape against each other with resulting damage. Once the buyer has a Set home, however, he can dispose of the larger box and store the contents in the storage tray. The tray is ideal both for working from during model-building and for long-term storage, being supplied with a clear plastic lid.

There we have it, then – Today's Meccano. Changes have been made, but remember that Today's Meccano is still very much Meccano – only better Meccano! Also, it arrives at an opportune time. Last year, as part of a drive to establish the product with "new" parents and children of no previous Meccano experience, we mounted our biggest-ever T.V. advertising campaign devoted exclusively to Meccano. It proved tremendously successful in that more Meccano was sold last Christmas than had been sold for many years before. The improved 1978 range will now capitalise on the new awareness created by the campaign and will take Meccano far into the future.



Above, the new Road Wheel and its component parts: 1" Bush Wheel, die-cast metal wheel centre and tough plastic tyre. Below, the compartmented strong plastic storage tray supplied with all the new Standard and Theme Sets.



Description of Parts		Part Sales No.	Number of Set							
				1	2	3	4	5	EXT S	EXT L
Perforated Strip	7½"	1B	Number of various parts per set	2	2	2	2	2	–	–
" "	5½"	2		2	2	4	4	6	2	2
" "	4½"	2A		–	–	–	–	2	–	2
" "	2½"	5		–	–	–	4	4	–	4
" "	2"	6		–	2	2	2	2	2	–
Angle Girder	12½"	8		2	–	–	–	4	–	4
" "	9½"	8A		–	–	–	4	4	–	4
" "	5½"	9		–	2	2	2	2	2	–
" "	4½"	9A		–	–	–	–	2	–	2
" "	3½"	9B		–	–	–	–	2	–	2
" "	1½"	9F		–	2	2	2	2	2	–
Fishplate		10		2	2	2	4	4	–	2
Double Bracket	½ x ½"	11		–	–	–	2	2	–	2
" "	1" x ½"	11A		–	–	–	1	1	–	1
Angle Bracket	½" x ½"	12		4	4	4	6	8	–	4
" "	1" x ½"	12B		–	2	2	2	2	2	–
Obtuse Angle Bracket	½" x ½"	12C		–	–	4	4	4	4	–
Axle Rod	11½"	13		–	–	–	1	1	–	1
" "	5½"	14A		–	–	–	–	1	–	1
" "	4"	15B		–	–	2	2	3	2	1
" "	3½"	16		–	1	1	1	1	1	–
" "	2½"	16A		1	2	2	2	2	1	–
" "	3"	16B		–	–	–	1	1	–	1
" "	2"	17		–	–	–	–	2	–	2
" "	1½"	18A		–	–	1	1	1	1	–
Pulley	3"	19B		–	–	–	2	2	–	2
"	1½"	21		–	2	2	2	2	2	–
"	1"	22		–	–	2	2	2	2	–
" Plastic	½"	23		4	4	4	4	4	–	–
Bush Wheel 8 Hole	1⅜"	24		–	–	–	–	1	–	1
" " 6 Hole	1⅜"	24B		–	–	–	1	1	–	1
Pinion	½" x ½"	26		–	1	1	1	2	1	1
Gear Wheel	1½"	27A		–	1	1	1	1	1	–
" "	2½"	27C		–	–	–	–	1	–	1
Multi Purpose Gear Wheel		27F		–	–	2	2	2	2	–
Contrate Wheel	1½"	28		–	–	–	1	1	–	1
Worm Wheel		32		–	–	–	1	1	–	1
Spanner		34C		2	2	2	2	2	–	–
Spring Clip		35		–	4	4	4	4	4	–
Screwdriver		36B		1	1	1	1	1	–	–
Bolt	¼"	37B		63	63	90	110	150	27	60
Nut		37C		75	75	132	162	218	57	86
Washer	⅜"	38		–	20	20	40	50	20	30
"	¾"	38D		2	2	2	2	6	–	4
Hank of Cord		40		1	1	1	2	2	–	1
Double Bent Strip		45		–	–	–	2	2	–	2
Double Angle Strip	1½" x ½"	48		2	2	4	2	2	–	–
" " "	2½" x ½"	48A		–	2	4	4	4	4	–
" " "	3½" x ½"	48B		–	–	2	2	2	2	–
Flanged Plate	2½" x 1½"	51		1	1	1	1	1	–	–

Description of Parts		Part Sales No.	Number of Set							
				1	2	3	4	5	EXT S	EXT L
Flanged Plate	3½" x 2½"	53	Number of various parts per set	1	1	1	1	1	–	–
Collar		59		–	–	–	4	4	–	4
Double Arm Crank		62B		–	–	–	–	1	–	1
Grub Screw	3/32"	69A		–	2	6	12	14	6	8
Flat Plate	5½" x 2½"	70		–	–	1	1	1	1	–
" "	1½" x 1½"	74		2	2	2	2	2	–	–
Screwed Rod	3"	80C		–	–	1	1	1	1	–
" "	2"	81		1	1	1	1	1	–	–
Curved Strip Stepped	2½"	90A		2	2	4	4	4	2	–
Flat Girder	4½"	103C		–	–	–	–	2	–	2
" "	3½"	103D		–	–	–	–	2	–	2
" "	2½"	103F		1	2	2	2	4	1	2
" "	1½"	103H		–	–	–	–	2	–	2
Face Plate	2½"	109		–	–	–	–	2	–	2
Bolt	¾"	111		1	2	4	4	4	3	–
"	½"	111A		4	4	16	16	22	12	6
"	1⅛"	111D		–	–	2	4	4	2	2
Threaded Pin Long	1⅞"	115A		–	1	1	1	1	1	–
Compression Spring		120B		–	–	–	–	4	–	4
Reversed Angle Bracket	½"	125		1	1	1	1	1	–	–
Flat Trunnion		126A		2	2	2	2	2	–	–
Corner Bracket	1"	133A		–	–	2	2	2	2	–
Wheel Flange		137		–	–	–	–	2	–	2
Corner Angle Bracket RH		154A		1	1	1	1	1	–	–
" " " LH		154B		1	1	1	1	1	–	–
Channel Bearing		160		–	1	1	1	1	1	–
Driving Band Light	2½"	186		–	–	–	1	1	–	1
Driving Band Light	6"	186A		–	2	2	2	2	2	–
" " Light	10"	186B		–	–	–	1	1	–	1
Flexible Plate	5½ x 1½"	189		–	–	2	2	2	2	–
" "	3½" x 2½"	190A		1	2	2	2	2	1	–
Transparent Plate	2½" x 1½"	193		–	–	2	2	2	2	–
Plastic Plate	2½" x 1½"	194		6	4	3	3	3	–	–
" "	2½" x 2½"	194A		2	2	2	2	2	–	–
" "	5½" x 2½"	194E		–	–	–	–	3	–	3
Rod Connector		213		–	–	–	1	1	–	1
Semi Circular Plate		214		–	–	–	–	2	–	2
Formed Slotted Strip	3"	215		–	–	2	2	2	2	–
Narrow Strip	2½"	235		–	–	4	4	4	4	–
" "	3"	235A		2	2	2	2	2	–	–
" "	3½"	235B		2	2	2	2	2	–	–
" "	4½"	235D		2	2	2	2	2	–	–
" "	1½"	235G		–	–	–	–	4	–	4
Tyre for ½" pulley	1 1/16"	452		4	4	4	4	4	–	–
Miniature Plug		611		–	4	4	4	4	–	–
Connecting Wire		618		–	1	1	1	1	–	–
4·5v Motor		11053		–	1	1	1	1	–	–
3v Battery Box		13624		–	1	1	1	1	–	
Road Wheel (Complete)		187C		–	–	4	4	6	4	4

A list detailing the contents of new Standard Meccano Sets 1 – 5, together with the S & L Extension Packs. Note that the new Road Wheel, which is in three main parts, is listed as a completed item under Sales No. 187C.

In View

MECHANICAL TIN TOYS IN COLOUR

The title of this book is perhaps just a little misleading, suggesting as it does (to the reviewer at any rate) a book full of colour pictures of tin toys. In fact, out of its 174 pages, only 48 are in colour and a further 38 are black and white picture pages, the balance being text. (Which makes £4.25 seem rather expensive, even in these inflationary days.)

The point is made, not as a major criticism of the book itself, but solely to guide the potential purchaser. The text is at least as interesting as the pictures and it could be argued that the somewhat inaccurate title does the book a disservice – it is not just a pretty picture book, it is a treasure trove of fascinating information on the origins, personalities, trade-marks and products of just about every major and nearly every second-line tin toy maker from the mid-19th century to the present day.

Individual company details are, of necessity, brief, but they are sufficient to give an added interest to that obscure toy with the unfamiliar trademark. The chances are that somewhere in this book you will find that trademark and be able to identify the toy's origin and possibly its approximate date of manufacture.

The colour pictures are excellent, and will do much to kindle the readers' interest in this fascinating nostalgia collecting hobby.

The reader will certainly feel, that some areas are inadequately covered; for instance, Meccano and Hornby are given only very scant mention and the most recent reference is to the Lines Bros. take-over in 1964. No mention is made of the subsequent association with Airfix, or of the collapse of Lines Bros. in 1971. Stranger still is the absence of a reproduction of the famous Lines Bros. trademark and the reference to its interesting origin is also incomplete. The book states the reason for the adoption of the triangle as being a symbol of the partnership of the three founding Lines Bros. – true, as far as it goes, but to me, the story is only complete when one is reminded that three lines make a triangle.

Perhaps some of these blanks are due to the fact that the book was translated from the original Dutch which may also account for the frequent re-appearance of that terrible mis-spelling of the word 'gauge' as 'guage'.

These criticisms should not, however, deter you unduly. Treated as an initial source book; as a starting point, from where the reader can delve deeper into this fascinating subject, or as a reference work to supplement more specialised publications, it is well-worth a place in your bookcase.

Author : Arno Weltens
Published by: Blandford Press
Size : 200mm x 137mm Price : £4.25

TOYSHOP STEAM

Author : Basil Harley Publisher : Argus Books

Size: 235 mm x 173 mm Price: £4.95

Nostalgia is big business these days, and not only amongst octogenarians. As products become ever more numerous, their permanent and production periods get shorter, and as soon as something is no longer made, its value to the collector immediately increases.

Perhaps this compression of the time scale has been to some degree responsible for the increasing interest in toys from the past, new collectors starting with relatively recent, and therefore more easily traced items, and working backwards in time as the bug really bites.

One section of toy collecting – steam engines – has, until now received scant attention but with the publication of this book, we suspect that the gap will soon be well filled.

Once a collection of any kind gets beyond the very early stage, the collector's appetite for information on his subject becomes insatiable. The snippets of information about everything and anything associated with the collection are eagerly snapped up. The people who made the products and the places where they were made become as interesting as the products themselves.

The dates when companies were founded and when they ceased production are suddenly important. Trade marks, colour variations, changes in design – all are part and parcel of the interest.

"Toy Shop Steam" goes some way to providing quite a lot of answers relating to toy/model steam engines. There are nearly three pages of data on more than fifty British steam engine manufacturers covering the past hundred years.

Some tantalising paragraphs ending with the phrase "Nothing else known" or "Only two stationary engines so far known". The author admits that his listing is likely to be incomplete but, as he states, it is a "serious first attempt".

Although information on many products and manufacturers is scanty, the same cannot be said for Malins - the makers of the famous Mamod Steam Engines. This company, which is still very much alive, is exhaustively dealt with, and if there is any criticism to be made of this book it is perhaps that it is a bit unbalanced in this direction. Even so, everything concerning Malins is interesting, and merely emphasises the absence of such in-depth information on many of the other enterprises mentioned in the book, much of which may now come to light.

Bowman receives a fairly good coverage, and some of the reproductions of early catalogue advertisements are of particular interest.

The book is well illustrated and has eight full colour pages (half of which are of Malin's products). Overall it is a most readable publication and will become an important addition to any reader interested in toys from the past.

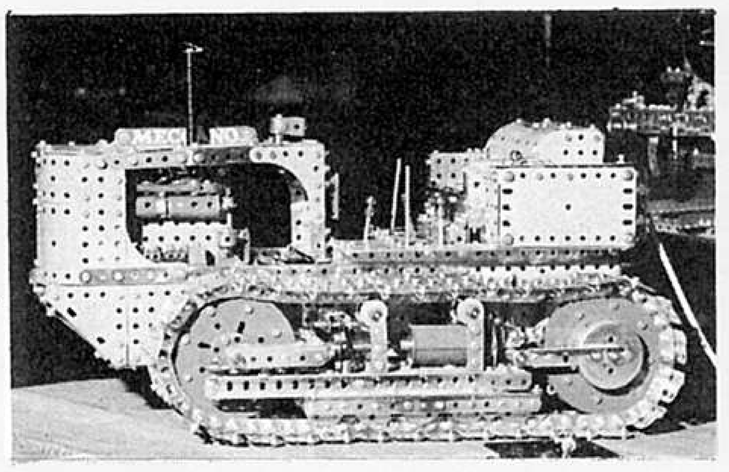
DARLINGTON DIORAMA

A report on the 2nd Annual Exhibition of the North Eastern Meccano Society

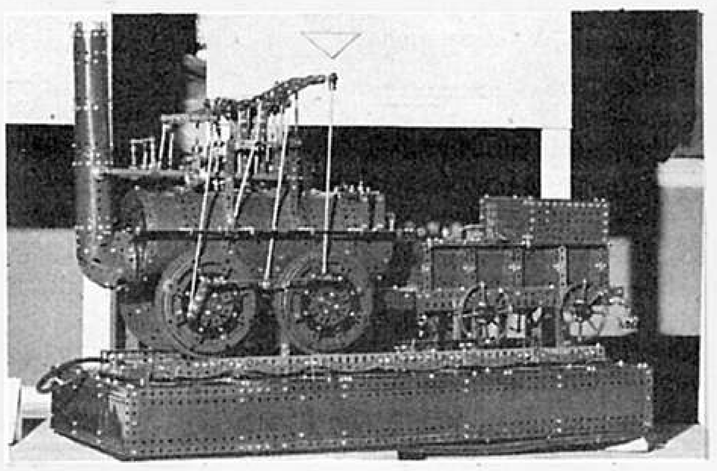
On 19th November last, activities of the North Eastern Meccano Society reached a climax when hard-working members mounted their 2nd Annual Exhibition in the Bondgate Hall, Darlington, Co. Durham. It was a first-class Show, the immense hall being well filled with the 96 models on display, these ranging from tiny miniatures to gigantic structures towering over the heads of the awestruck members of the public!

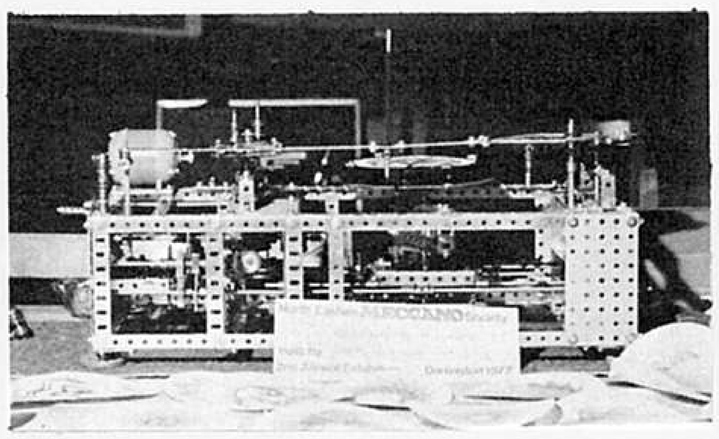
Despite a prolonged local Press strike which prevented the Exhibition being advertised in the district's papers, an encouraging number of paying visitors attended the Show and, by the end of the day, the Society's outlay of around £100 was all but recovered. On behalf of the Society, we would like to thank, not only all the visitors, but especially those who came from afar to exhibit their models and to spend a day in the far North helping to show the man in the street what really can be done with Meccano. Thanks also go to Mr. Geoff Wright of M.W. Models and Ted Knowles of Meccano Limited for their splendid, though difficult, work of judging modelling competitions, and particular thanks go to the ladies who not only put up with our model-building during the year, but who also provided much-needed refreshments at the Show.

The central location of the hall obviously paved the way to many more annual exhibitions spectators requesting to know when the next one would be held as they gazed in wonder at the 230 ft. of tabling filled with models of all kinds. Some of those models are illustrated here, although we regret that space permits only a small selection to be presented. We apologise to the builders of the many equally deserving models not shown. However, there is always next time, and there will be a next time – the Bondgate Hall in Darlington has already been booked by the Society for November 18th!

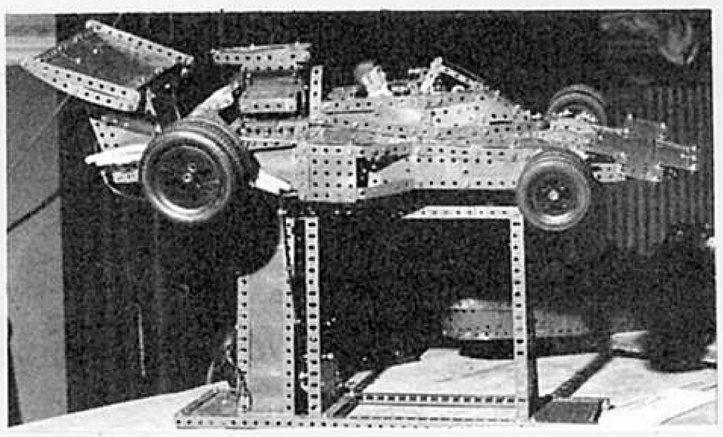


Above, a rugged Heavy-duty Crawler Tractor built by Chris Barron and based on an original model designed by the late Eric Taylor. Eric's original was illustrated in the January 1977 MM. Below, a fascinating display model recapturing Locomotion No. 1 built by Frank Beadle, Secretary of the North Eastern Meccano Society. Intended as a long-running display piece, it is driven by a mains-powered Enicron motor. All photos by Kenbar Studios, Northallerton.

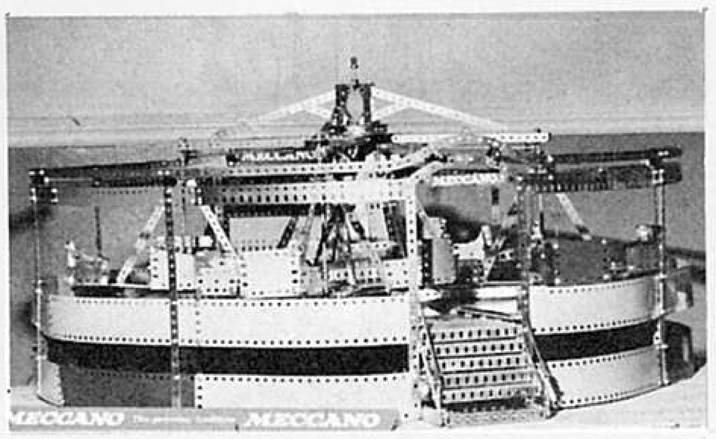




Above, a complicated combination-type Meccanograph Designing Machine built by Barry Wilkinson. Note the use of the new EU1072 electric motor for powered operation.



Above, another fine offering from Frank Beadle was this reproduction of the John Player Special racing car mounted on a special tilting display stand.

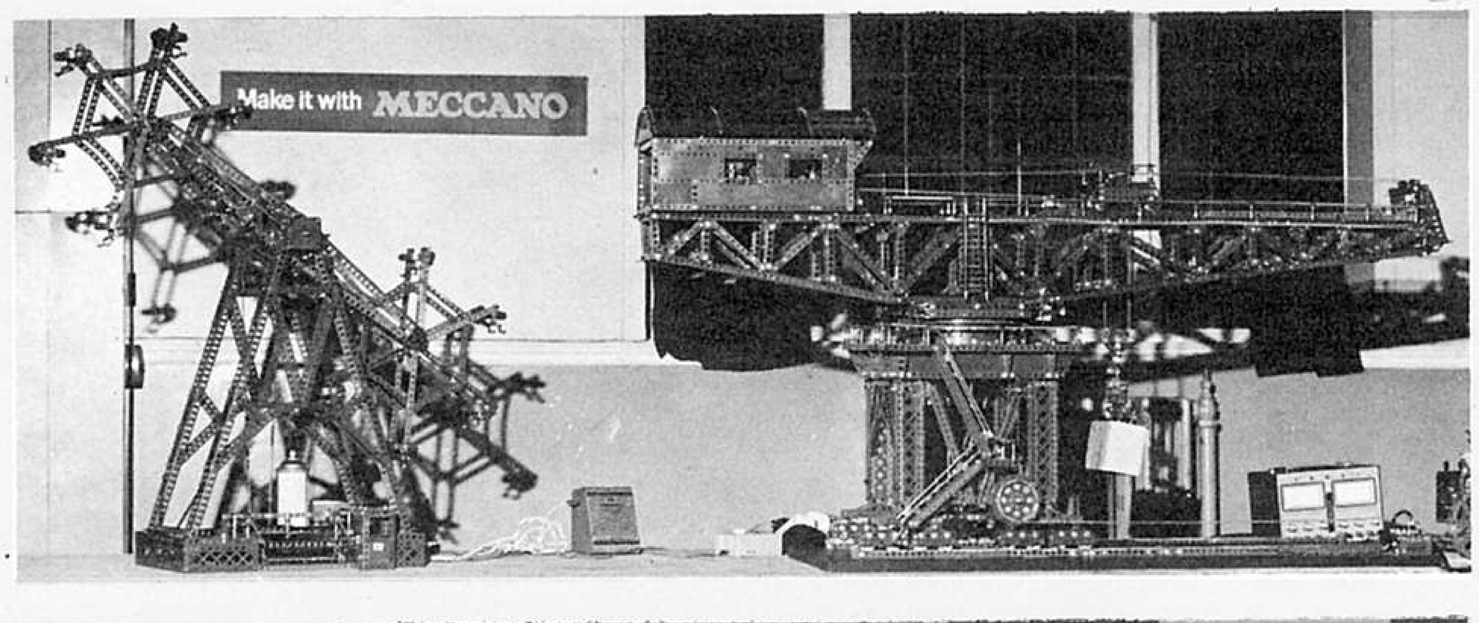


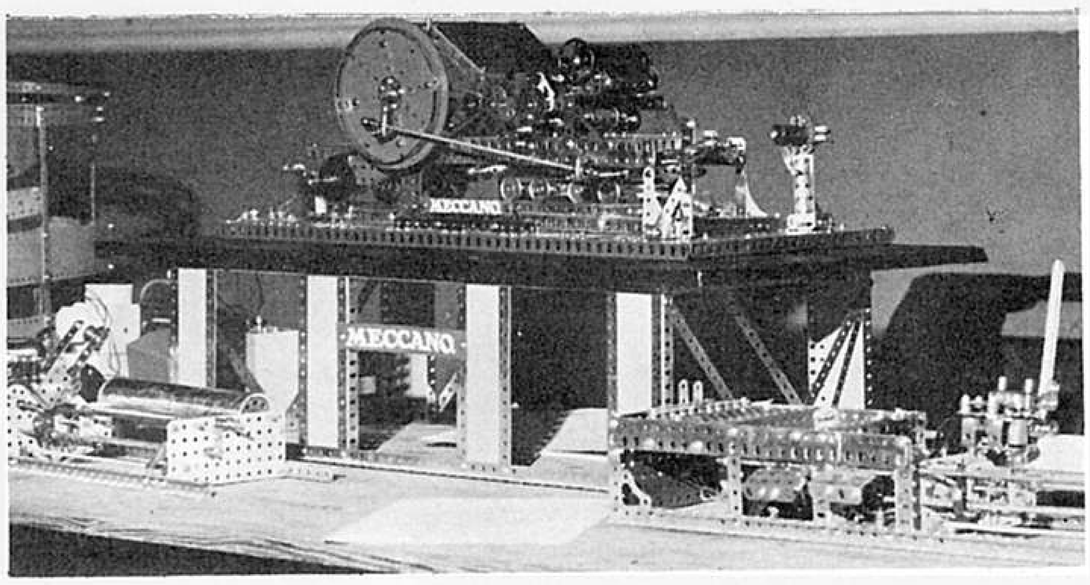
Above, a large Fairground Ride built by Joe Etheridge. Fully-illuminated, it featured four chairs on each of four rotating arms with drive coming from a single P.D.U.

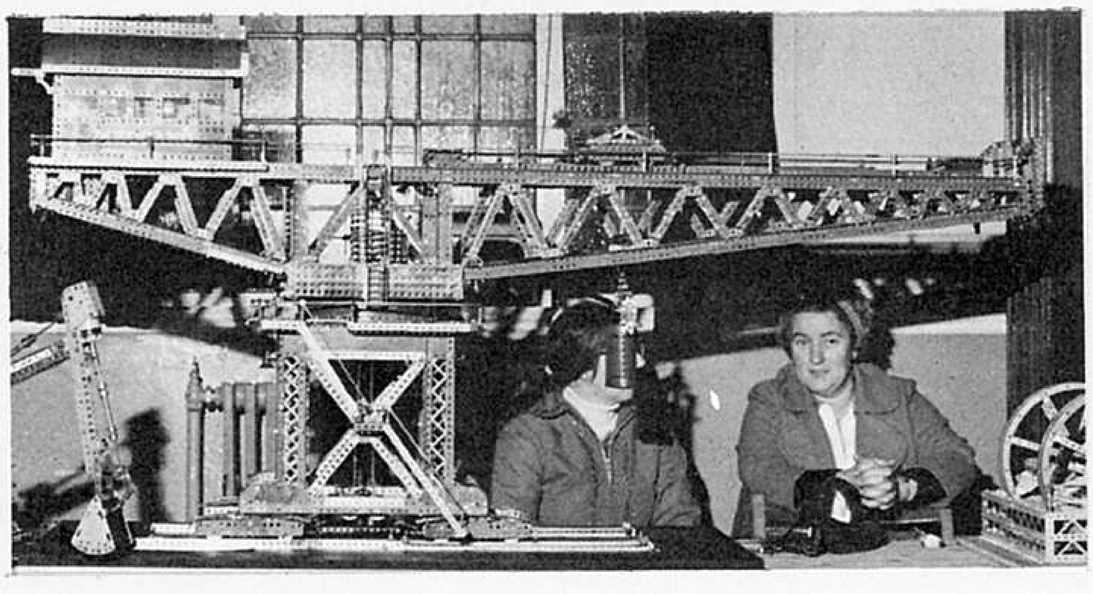
Right, both these giant models were displayed by John Stephenson. On the left is a Double Ferris Wheel while, beside it, is a beautiful and fully-automatic Block-setting Crane which worked faultlessly for the whole Exhibition, lifting a breeze block through a whole sequence of movements.

Below left, an amazing Teleprinting Machine built by Joe Etheridge from an original design by Mr. Giuseppe Servetti of Piacenza, Italy. It copies metallic lettering with remarkable accuracy!

Below right, another extremely well-proportioned Block-setting Crane, this eye-catching example built by Ellis Dudley. Remotely controlled, its fully-operating movements are driven by four Power Drive Units.

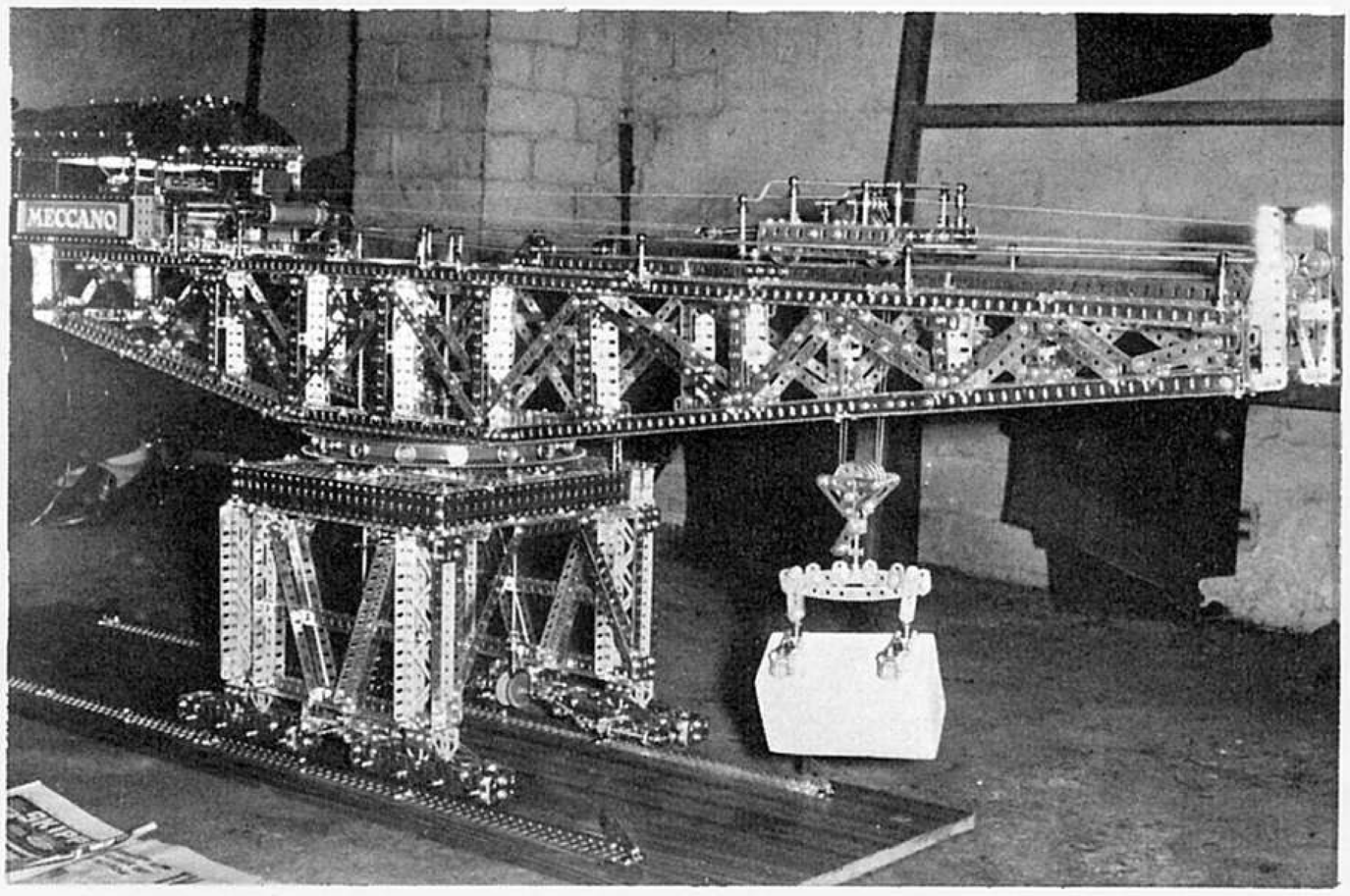






NORTH WEST FRONTIER

by Michael J. Walker



Published in June 1928, Supermodel Leaflet No. 4 featured the famous Giant Block-setting Crane which set the standard by which all later models of this type were to be judged. This version was built by Mr. Norman Mason of Standish, Lancashire.

Special Model Leaflets, describing the construction of a Meccano model too large and/or complex to be incorporated in the regular Instruction Manuals, have long been a feature of Meccano literature. The current Set 10 has 30 such leaflets which are packed in the outfit to replace the Manual. Leaflets were issued in conjunction with the Meccano Magazine "Models of the Month" series in the '50's' and early '60's'. Although these were not in themselves illustrated, they carried details for building large models which could not be adequately described in the limited space available in the magazine. The illustrations, alone, were printed in the magazine.

By far the most famous set of Special Model Leaflets, though, were the 1928-36 series depicting the Supermodels. Their immense popularity amongst advanced constructors can be attributed, not only to the quantity and variety of subjects, but also to the legendary size and complexity of many of the models described. During 1927, with Meccano the premier toy on the British market, the series designers were given a completely free hand to produce a set of leaflets depicting models most representative of the constructional capabilities and versatility of the system. As far as parts were concerned, no limits were set, although it is true that in the majority of cases the models could be built from the then largest outfit: No. 7.

IMPRESSIVE MODELS

Not surprisingly, then, some very impressive models were in preparation in March 1928, when the series was launched. In the initial stages, leaflets were published illustrating quality models that had already been described elsewhere in Meccano Magazines and Manuals, as in the case of the Motor Chassis and Ship Coaler. May 1928 saw six more Manuals and old M.M. models resurrected in the form of leaflets, two of which were the Horizontal Steam Engine and the Log Saw. However, the first indication that this series was going to be really special came in June 1928, with the introduction of the No. 4 leaflet describing the mammoth Giant Blocksetting Crane.

STANDARD-SETTER

The impact of this model cannot be overrated; it set the standard by which all later models of this type were to be judged. Breathtaking in size alone, it featured hoisting, travelling, slewing and crab travel. The parts list demanded copious quantities of Girders; Strips and Gears, including 104 1½" Angle Girders! Another very important feature of the model was that it introduced the use of the new Geared Roller Bearing, Part 167. This consisted of two 12" diameter metal toothed races enclosing a "spider" of a $9\frac{7}{8}$" Flanged Ring fitted with 16 Flanged Wheels. The Blocksetting Crane, or "GBSC" as it later came to be known, was responsible for the demand for hundreds of these Bearings, in spite of the fact that its retail price of £1 was practically a week's wage then!

With the "GBSC" as its image builder, the range of Supermodel Leaflets continued to expand over eight years until 1936, when 40 different models were described. Not all the "SMLs" were of large models. Some, including the Planning Machine and Vertical Log Saw, were quite small, but in each case this was compensated by a novel or sophisticated mechanism. This wasn't a fault; the fact that the range encompassed some more easily-built constructions must surely have encouraged many to try construction who would otherwise have 'played safe' and kept to the Instruction Manuals.

No-one can deny that the SMLs fulfilled their designed role of bringing top-class model instructions to a great many enthusiasts, but in my view the 'prestige' value of the series should be considered when assessing their success. To a prospective purchaser of Meccano, the SMLs were a first-rate advertisement for the system. To those already with an outfit, the fabulous models in the range engendered excitement and the ambition to purchase ever more parts.

Club Secretaries, such as myself, must beware when writing reports for Club meetings, exhibitions, etc., for although every model on show deserves to be called a "Super Model", this term must only be applied to those originating from the SML range. Other adjectives must be found for the non-SML derived constructions! This illustrates the universal acceptance of SML models as a vital part of modelling today, despite the fact that the designs are somewhat long in the tooth now. Even the dated look of some Supermodels is considered an asset by their builders, who maintain with some justification that Meccano is an ageless hobby, and that an old-fashioned appearance lends an extra dimension: atmosphere.

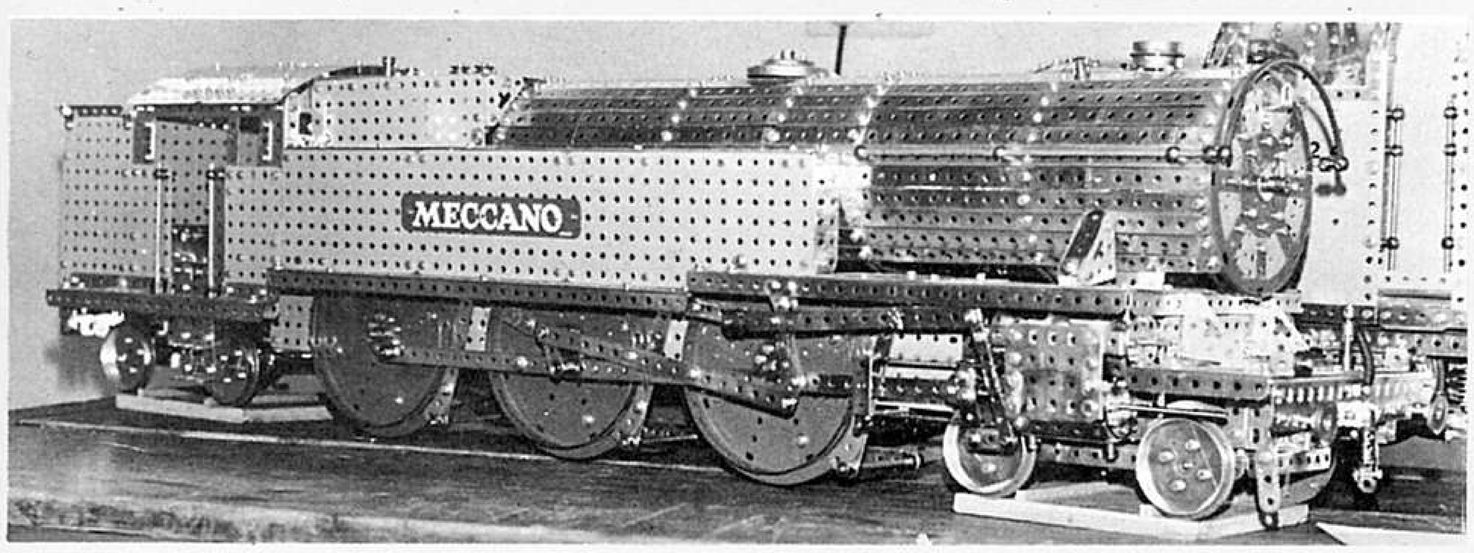
CURIOUS PARADOX

A curious paradox occurs in the construction of the Supermodels today, in that the biggest and most elaborate models are the most frequently reproduced, witness the many Giant Blocksetting Cranes at exhibitions in recent years. Similarly, in my entire experience I have not seen a version of the previously-mentioned Log Saw! I am of the opinion therefore that the Meccano modeller is as ambitious today as ever, and automatically tries to build the best model his outfit will allow!

Although the SMLs are now long out of print, photocopies are available at very modest cost, allowing one to collect the full set at less cost, in real terms, than the originals cost in the 1920's! This makes the acquisition of a full set the Meccano bargain (quite literally) of the century, as thousands of enthusiasts have found out for themselves.

Take a look at the photos on this page, purchase some photocopied SMLs and join the ranks of the Supermodellers!

This Baltic Tank Locomotive, built by Norman Chapman of Huddersfield, was originally featured in Leaflet No. 15 of the treasured 1928–36 series of Meccano Supermodel Leaflets. The original Leaflets are now highly-prized collectors' items, but good photocopies of them can be obtained today at modest cost from M.W. Models of Henley-on-Thames.



MECCANOGRAPH PANTOGRAPH DRAWING MACHINE

Designed and built by Colin Cohen from the No.5 and Gears Sets

Always fascinating subjects for modellers, Meccanograph Designing Machines have been featured in *Meccano Magazine* in very many different forms over the years, yet we cannot remember ever before having featured an effective working model built from such a low-numbered Standard outfit as this example. It is built from a No. 5 Set (1977-type), plus the Gears Set, and full credit, not only for the design and construction, but also for the following building instructions, goes to Mr. Colin Cohen of Vredehoek, Cape Town, South Africa.

CONSTRUCTION

Beginning construction with the frame, this is built from four 12½" Strips with a 5½" x 2½" Flanged Plate and a 2½" x 1½" Flanged Plate 1 on top, and a 4½" x 2½" Flat Plate and two 2½" Strips on each side. The Bolts fixing the end 2½" Strips in place also hold Obtuse Angle Brackets to which an end 2½" Curved Plate is fixed, while 2½" Curved Strips 2 are held by the Bolts fixing the inner 2½" Strips in place.

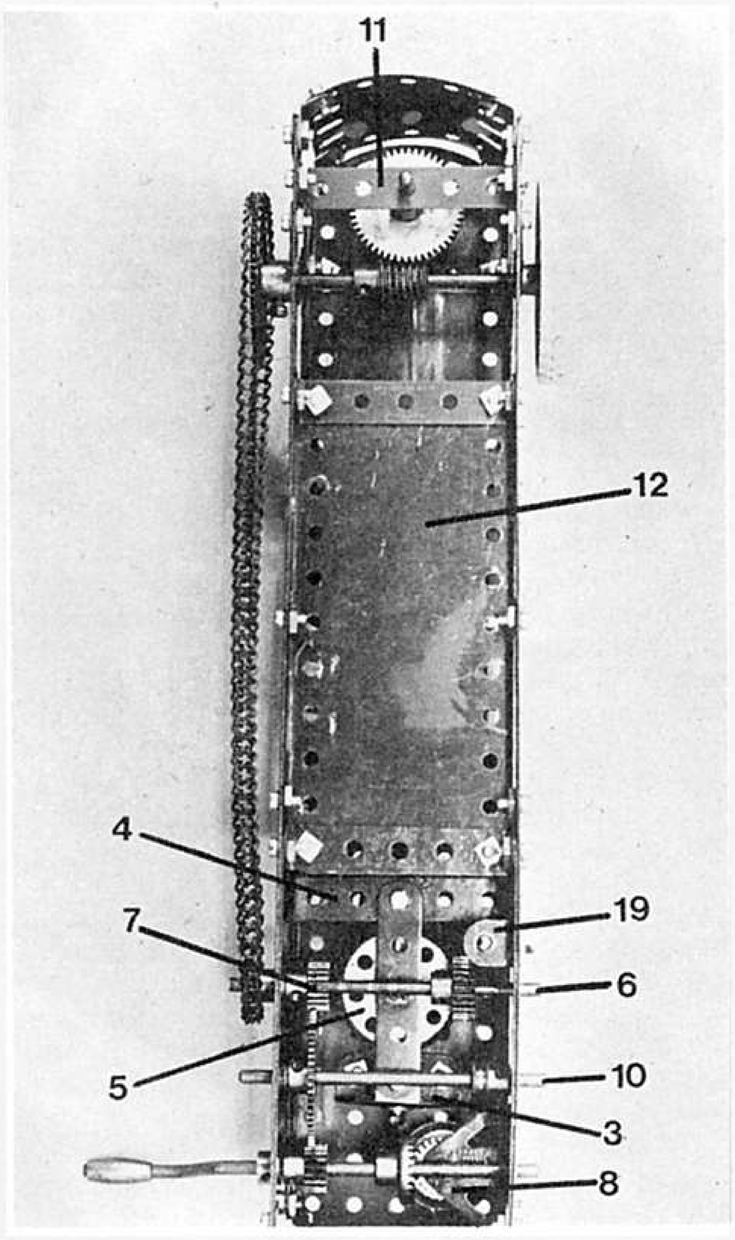
Turning to the mechanism, an Angle Bracket on a Trunnion 3 and a 2½" Double Angle Strip 4 support a 2½" Strip. A 1½" Rod is then passed through the centre hole of the 5½" x 2½" Flanged Plate of the frame top and is fitted with, in order, a Washer, a Collar and a 1½" Contrate Wheel 5, after which the end of the Rod is located in the 2½" Strip. The Contrate Wheel meshes with a ¾" Pinion on a 3½" Rod 6 which also carries a ½" Pinion 7 and a ¾" Sprocket Wheel.

A Trunnion 8 fixed to the side of the frame supplies the lower journal for a 2" Rod supporting a cam 9. The upper journal of the Rod is supplied by the 5½" x 2½" Flanged Plate and, between the journals, the Rod also carries a 1" Pulley and a ¾" Pinion. In mesh with this Pinion is a ¾" Contrate Wheel which, along with a ½" Pinion and a Collar, is fixed on a Crank Handle journalled in the frame sides. The ½" Pinion is linked to Pinion 7 by means of a 1½" Gear Wheel on a 3½" Rod 10 which is held in place by a ½" Pulley at its other end.

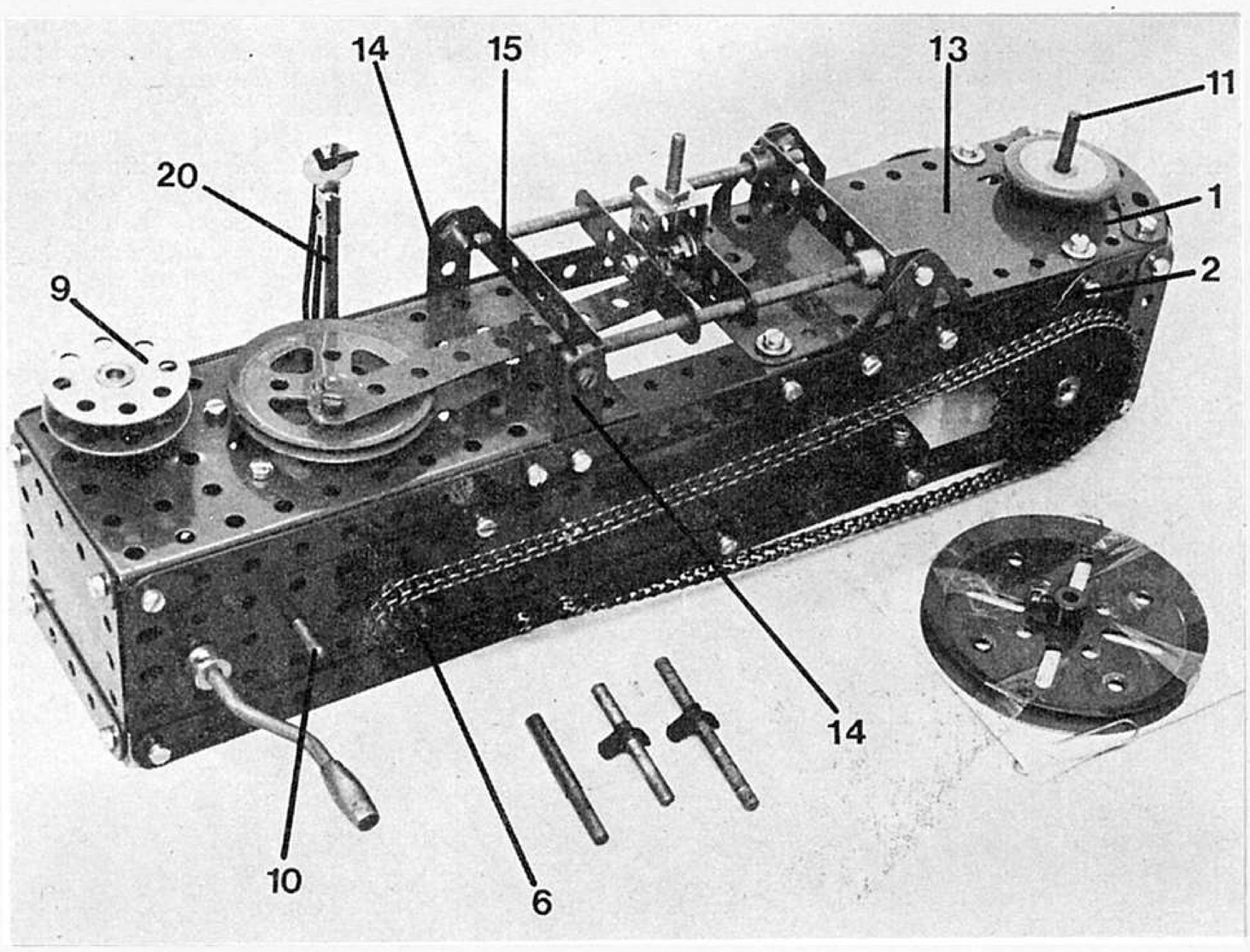
Located in the centre hole of Flanged Plate 1 is a 3½" Rod 11 which carries two 1" Pulleys - one either side of the Flange Plate to keep it in position - and 50-teeth Gear Wheel which meshes with a Worm on a 3½" Rod journalled in the centre holes of Curved Strips 2. This Rod also carries a Road Wheel and a 2" Sprocket Wheel which is connected to the earlier-mentioned ¾" Sprocket Wheel by Chain, as shown.

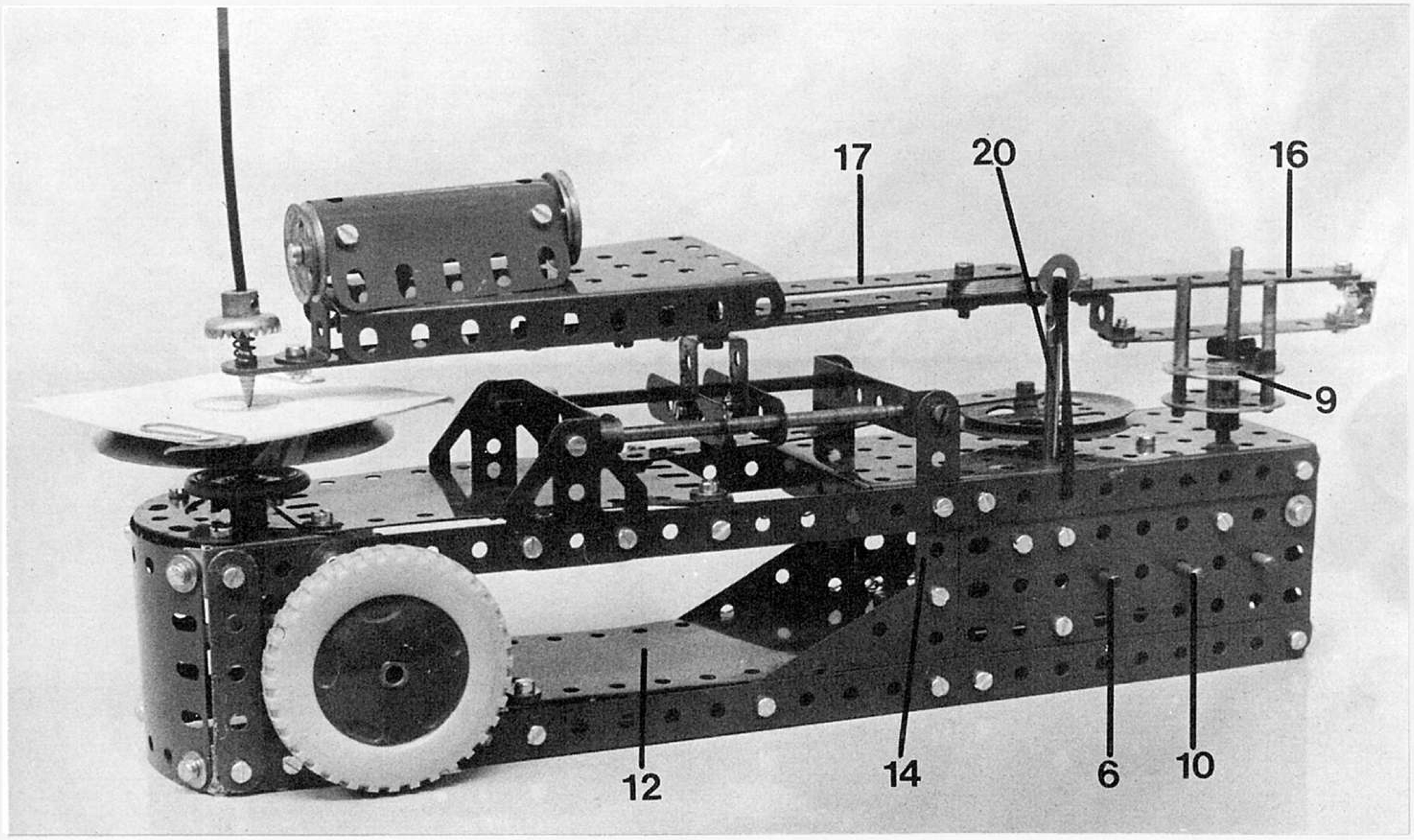
A 5½" x 2½" Flexible Plate 12 is now fixed to the base of the frame by two Double Angle Strips, while a 4½" x 2½" Flexible Plate 13 is fixed to the top of the frame, one end being bolted to Flanged Plate 1 and the other being held in place by Angle Brackets. A Semi-Circular Plate linking the two Angle Brackets beneath the Flexible Plate adds rigidity to the structure.

Bolted to the sides of the frame in the positions shown are two 2½" Strips 14 supported at their lower ends by 2½" x 1½" Triangular Flexible Plates. The upper ends of these Strips at each side are connected by a 2½" x ½" Double Angle Strip 15, *held in place by 3/8" Bolts.* A second, similar, 2½" x ½" Double Angle Strip is attached to two Flat Trunnions bolted as shown to the sides of the frame. In this case, however, ordinary Bolts are used for fixing purposes, each Bolt being fitted with a Spacing Washer. Mounted in the end holes of the Double Angle Strips are two 4½" Rods on which the crosshead slides. The crosshead itself it built up from a ½" x ½" and a 1" x ½" Double Bracket, coupled by their lugs, together with two 2½" Strips. Pivotally attached to the smaller Double Bracket by a 3/8" Bolt passing through its



Pictured left is the Meccanograph viewed from beneath to show the transmission of drive from one shaft to another by means of the gears in the Gears Set. Below is a general view of the machine with the table removed to show the crosshead slides.





A general view, above, of a neat yet effective working Meccanograph designed and built by Colin Cohen of the Cape Town Meccano Club, South Africa. It is built from a No. 5 Set (1977-type) and a Gears Set

third hole is a 5½" Strip, the other end of which is pivotally attached to a 2" Pulley fixed on the upper end of the Rod carrying Contrate Wheel 5. Note that the Strip must be bent slightly to allow for the difference in pivot levels. Fixed to the larger Double Bracket, shank upwards as shown, is a ¾" Bolt which later locates in the writing arm.

Turning to the writing arm, a 3½" Strip is connected by a Reversed Angle Bracket, and two Angle Brackets arranged to form a Double Bracket, to two 5½" Strips 16, one on top of the other. These Strips are extended by a further pair of 5½" Strips, overlapped 3 holes, these Strips in turn being extended by another pair of 5½" Strips also overlapped 3 holes. Another centrally-positioned 5½" Strip 17 is fixed in the position shown, this being spaced from the other Strips by five Fishplates at one end and by a ½" Pulley without boss at the other. A ½" Bolt is used for fixing purposes in each case.

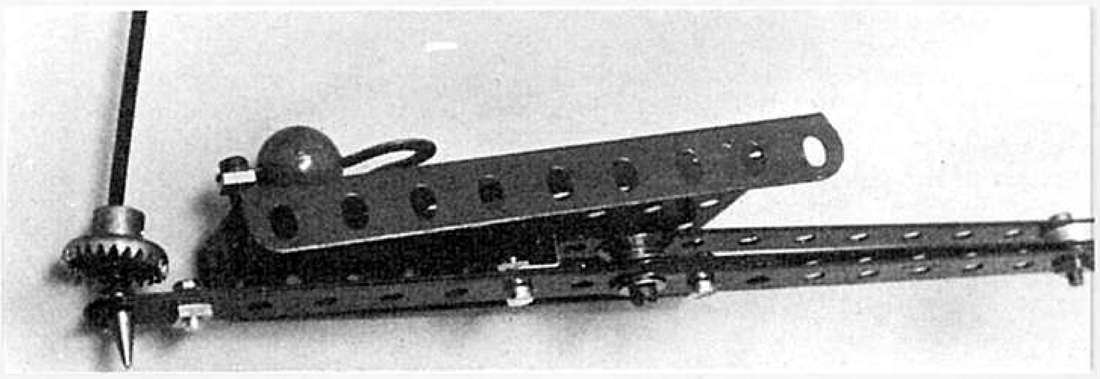
Attached to the writing arm by a Double Bracket and a Reversed Angle Bracket is a Flanged Sector Plate. Note that the Plate is attached to the Reversed Angle Bracket by Nuts on a ¾" Bolt, a Loaded Hook also being secured to the elevated head of the Bolt. (Mr. Cohen used an obsolete Hook in the model illustrated, but the modern version will do equally well). The Hook is concealed beneath a U-section Curved Plate, to each end of which a 1" Pulley without Boss is fixed by an Angle Bracket. A third Angle Bracket 18 is secured to the rear Pulley, this being used to fix the assembly to the Flanged Sector Plate by means of a 3/8" Bolt which also serves to fix the Flanged Plate to the above-mentioned Double Bracket. Additional weights may be concealed beneath the Curved Plate if more pressure is required on the pen, but the pressure should be kept to a minimum.

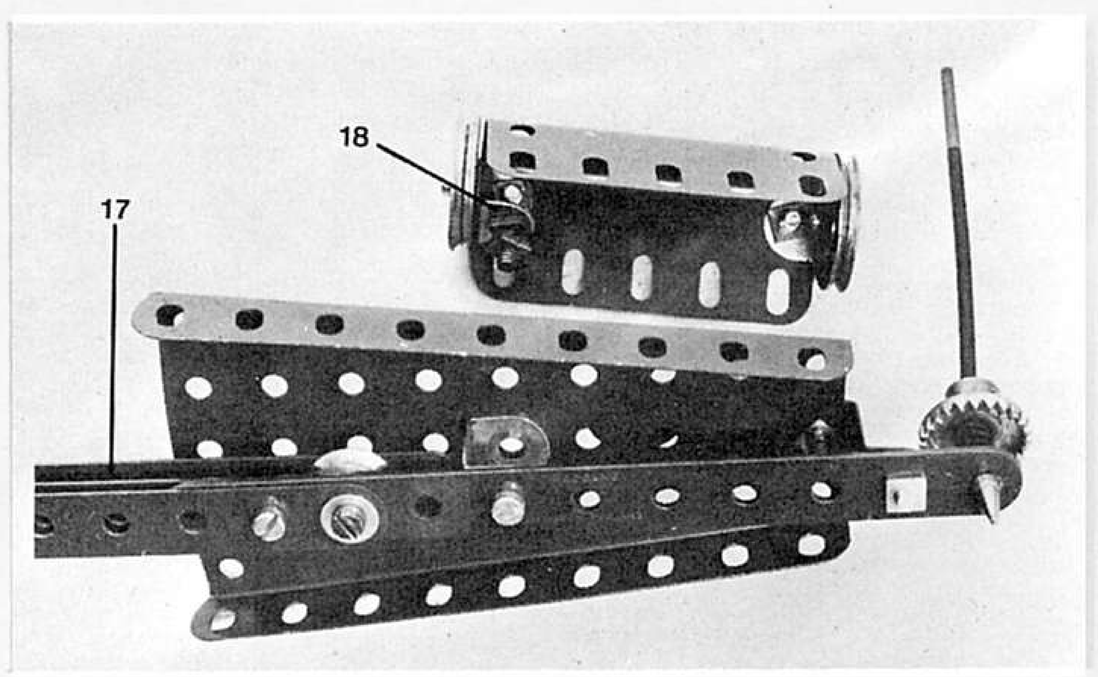
The pen itself, is provided by a BIC-type ballpoint pen refill held in position in the end hole of the writing arm by a Compression Spring and a ¾" Contrate Wheel.

A 1½" x ½" Double Angle Strip 19, bolted to the inside of the frame, holds a Rod with Keyway 20 which is prevented from slipping downwards by a Cord Anchoring Spring. A 6" Light Driving Band is passed through the side of the frame and looped around Rod 20, the other end being passed through a Rod and Strip Connector and then around the writing arm behind the Fishplates. This retains the arm against the cam. The cam itself comprises two Bush Wheels, a 1½" and a 2" Rod, each with a Spring Clip, and a 1" Rod slipped part way into a Rod Connector. The table is a 3" square of strong cardboard stuck to a 3" Pulley Wheel with sellotape, and two paperclips attach the sheets of paper to the cardboard during operation.

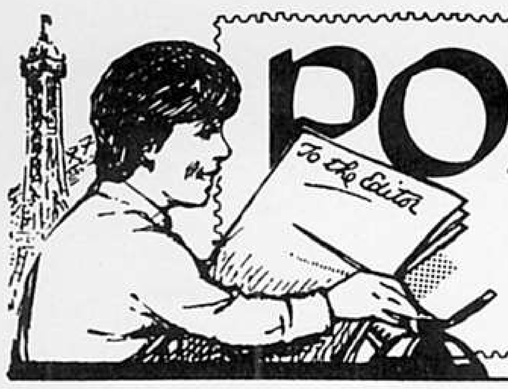
PARTS REQUIRED

4 – 1	1 – 20a	1 – 48	2 – 125
8 – 2	3 – 22	6 – 48a	2 – 126
1 – 3	2 – 22a	1 – 51	2 – 126a
9 – 5	1 – 23a	1 – 52	1 – 176
5 – 10	2 – 24	2 – 53a	1 – 186a
2 – 11	2 – 25	1 – 54	1 – 187
1 – 11a	2 – 26	1 – 57c	1 – 190
7 – 12	1 – 27	4 – 59	1 – 191
4 – 12c	1 – 27a	3 – 90a	1 – 192
2 – 15b	1 – 28	1 – 94	1 – 199
4 – 16	2 – 29	1 – 95	1 – 200
2 – 17	1 – 32	1 – 96a	1 – 212
2 – 18a	2 – 35	2 – 111	1 – 213
1 – 18b	95 – 37a	2 – 111a	1 – 214
1 – 19b	80 – 37b	5 – 111c	2 – 221
1 – 19s	18 – 38	1 – 120b	1 – 230





Pictured right are two views of the writing arm. In the upper picture the weight cover has been removed to show the Loaded Hook which is used as a tensioning weight for the pen. The Author's obsolete Hook can be replaced by the modern version if desired. Construction of the weight cover is clear from the lower picture. Note that the Sector Plate is fixed to the Double Bracket by Nuts on the shank of the weight cover's rear securing Bolt.



POSTBAG

Meccano Magazine
P.O. Box No. 4
Binns Road
Liverpool L13 1DA.

THAT STRANGE STRIP

Dear Sir,

First, let me congratulate Mike Nicholls and his team on their excellent April/July/October issue of the MM. I'm sure I speak for many readers when I say I was sorry to learn that he had to relinquish the editorial chair after such a short time.

On Page 39 of the A/J/O edition, I note a request for information on a slotted perforated nickel-plated Strip. I think I can throw some light on this object which was part of a construction set called "MEX". This consisted of these strips in 1½", 2½" and I think, 5½" sizes, together with slotted wheel discs, nuts and bolts and screwed rods.

MEX was marketed in the 1930's and was sold in Woolworth's at 6d per box. In fact, it was a rival to the 6d TRIX sets also on sale at that time. I recall having such a set together with my early MECCANO and TRIX, but found MEX was inferior to both these. The slots, which were intended to interlock so saving nuts and bolts, were badly cut out and did not always fit well. PRIMA MECCANO would appear to follow a vaguely similar principle to MEX.

I hope this information is of interest.

Yours faithfully
JOHN ROSSANT
Port Talbot, W. Glamorgan

(Many thanks for the information, John, and may I also echo the sentiments expressed in your first paragraph. Ed)

* * *

M.M. CONTENTS

Dear Sir,

Many congratulations on the MM. I received my first MM in January this year and found it very interesting, but I thought that there were too many advertisements. And also all the models in the Magazine I was unable to build.

For this, I suggest that, in each issue, you publish models that can be built from Sets 1–10. I suggest this because I have only got the No. 7 Set. I hope this is an idea in which you take some thought too.

Yours sincerely
D. T. MOYLER
Hemel Hempstead, Herts.

(Thank you for your congratulations and your constructive comments, Master Moyler. However, it is vital that we carry advertisements to help pay for the Magazine and ensure its future, and I think you would actually find that we carry less advertising than most other magazines with the same number of pages as the MM. We hope to feature as many 'outfit' models as possible in the future, by the way, but the problem is finding good models to feature. Any help from readers will be much appreciated) Ed.

Dear Chris,

Congratulations on the January edition. I think this is one of the best editions produced to date. Keep up the good work.

I do have a few strong words, though, for Frank Beadle. I and many of the Meccano fraternity have neither the time nor the knowledge to design and build a supermodel from scratch. It gives me as much pleasure to build a supermodel from a leaflet and getting it to function properly as it probably gives the minority of constructors the pleasure of designing their own models.

Now what I would like to see (choosing examples from the January edition) is Meccano issuing instructions to build the 'Eagle Transporter' featured on the front cover, and from the Henley Show, Tony Rednall's Hymac 580C; Bob Ford's Giant Lorry-mounted Crane; Kevin Hall's Scammell Earth-moving Lorry and I could go on ad infinitum. The point that I am trying to make is that, if other people can build and design them, why can't Meccano produce the back-up in written form for the benefit of the enthusiast?

I can see the look on your face now and read your mind! From a financial point of view remember that Meccano in its heyday did produce a good set of Supermodel Leaflets. The Meccanoman's Club still produce a good set of leaflets. However, do you not feel that a set of these "Giant Supermodel Leaflets" would not sell well? I am sure that I am only one of the huge silent majority who would love to see a new set of Supermodel Leaflets coming from Meccano. You produce them and I'm sure that there would be no problem in selling them.

Once again, congratulations on the Magazine and I for one hope that it lives for another 63 years.

Yours sincerely
NICK RODGERS
Weybridge, Surrey

(Many thanks for your congratulations and I sympathise with you on the subject of a new set of Supermodel Leaflets. However, Meccano Limited has often considered the possibilities of producing such a set and the fact is that a range of separate, individual leaflets of the type and quality even of the current No. 10 Set Leaflets would NOT be economically viable. Never mind the cost, though, what concerns me more is who would write them? When the previous leaflets you mention were prepared, the Company employed quite a large staff of writers and those responsible for the leaflets were able to devote a large part of their time to them. Today, there is ONLY your Editor – and I can assure you that, what with other duties as well as the MM, he has not a minute to spare! Shades of nervous breakdown! – Ed.)

Dear Editor,

I was very pleased to receive the January 1978 issue of the Meccano Magazine and I very much hope that it will now be possible to maintain continuity of publication in the future, after the unfortunate events of 1977.

However, I would like to make one or two observations concerning the contents of the Magazine and would appreciate your comments on them in return.

First, I was disappointed to discover the absence of "Postbag", which seemed to be very widely appreciated by your correspondents in the April 1977 issue. I am sure that the opportunity to exchange experiences and opinions concerning our great hobby is extremely valuable and so I trust that this omission is temporary.

Secondly, I feel that two articles on topics which do not deal with either Meccano or other model interests is two too many. In its quarterly format, the MM is essentially a specialist publication and those who subscribe to it do not do so to read about 'Concorde' or space exploration. If it was your intention to attract non-specialist readers, then there might be some justification for including articles of this nature, but unless, or until, monthly publication is resumed, with the Magazine on the bookstalls, I do not believe that your policy will find general approval among your readers.

However, in spite of these criticisms, let me hasten to add my congratulations to those of your other correspondents, regarding both the format and general contents of the Magazine, which are really first-class. I look forward to hearing from you – perhaps in the next issue of the MM?

Yours sincerely
J. D. HORSMAN
Coalville, Leicester

(Again, thanks for your congratulations – and I think the fact that this letter is here answers your first point! Regarding your comments on non-Meccano features, however, these really highlight the point that it is impossible to please everyone. I understand your feelings, but if you remember the MMQ as published between April 1973 and October 1976, this was very much a specialist publication with few, if any, non-Meccano items, yet we had plenty of requests for occasional 'general' features to lighten the load. It was pointed out on more than one occasion that Meccano enthusiasts are not dead to other subjects; they do find other things interesting, provided the MM did remain essentially the MECCANO Magazine. Because of space limitations in the small MMQ, however, it was not feasible to include non-Meccano material, but with the much increased size and number of pages in the 'new' Magazine, it was felt that a feature or two on other subjects of interest would not go amiss. Nonetheless, we could be wrong; have any other readers an opinion? – Ed.)

Dear Chris,

During the years of the 1920's and 1930's a great deal of space was allocated in the Meccano Magazine to news of the introduction of a new Meccano part. Usually a photograph appeared of the new part, together with details of its size, use and versatility and when readers might expect to be able to buy it from a Meccano stockist. However, I think a few new parts have crept in under my guard in recent years. Although I read the Meccano Magazine in its entirety, the only reference to the introduction of Part No. 235g (1½" Narrow Strip) is in the M.W. Models advertisements that have appeared since January 1977 (Standards Part 1 – 235g).

Similarly, the Clock Kits were heralded in the April 1972 edition of MM on the front advertisement pages with no details of the parts. Then, in October, 1972, once again M.W. Models' advertisement listed Clock Parts Nos. 251 – 265 plus Part Nos. 20c and 109a. Were 20c 2" Pulley without boss and 109a Face Plate without boss intended to be included in the list of Meccano Parts and Accessories?

I am isolated in Adelaide, South Australia where my nearest Meccano stockist is situated, 1,500 km away in Perth, Western Australia (and his Meccano list is obsolete!) Therefore, more news in the Meccano Magazine on the introduction of, or changes to, parts (or withdrawals) would be appreciated.

Finally, I think the current format of MM is excellent! Perhaps over a period of, say, four quarters, all the current Meccano parts could be listed as an added feature of interest, similarly to Plastic Meccano as on Page 76 in the April/July/October 1977 issue.

Yours sincerely
CLIFF THEILEY
Fulham, South Australia.

(Sorry, Cliff! You obviously now know the technical details of the parts you mention, but we will do our best to ensure that all future changes and new introductions are fully reported in the MM – like the in-depth report on Today's Meccano elsewhere in this issue. Would any other reader like a full listing of all the current parts? – Ed)

Dear Mr. Jelley,

Just a note to say how pleased I am that you have been able to retain the excellent new format for the Meccano Magazine. It is first rate and I hope that it can continue in this style. By the way, the model on Page 21 (January issue) "Delta Wing Cargo Plane" I think is in fact the US Space Shuttle with a space lab (?) cargo in its hold.

With best wishes for the future of the new look Magazine. Well done!

Yours sincerely
BRETT GOODEN
University of Nottingham
Nottingham

(Many thanks; although I would like to pay tribute to Mike Nicholls and his team for the "excellent new format". With the support and help of all Meccano enthusiasts we hope to be able to continue the style and content into the future. Thanks also for identifying the "Delta Wing Cargo Plane; it is, indeed, the Space Shuttle with a space lab inside, and I have since learned that it was built by Peter Brown of Stevenage, Herts, who is to be congratulated on his model. Perhaps we should have more "Space" articles in the MM which I should read!) Ed.

* * *

ABOUT MOTORS

Dear Sir,

Motors and Transformers - 1978

Can we have an appraisal please of the relative strengths of the various motors on offer to model-builders? This query is prompted by the rather indifferent results obtained with an old E15R Electric Motor for driving large moving models such as Tramcars, etc. (starting torque deficient here). For example, are small Power Drive Units and the so-called Crane Motor equal to this task? I should imagine the new EU1072 Motor to be the only choice?

Which transformer is recommended for each machine and can two of the above small motors be run from one control unit? Other relevant details, such as speed control on AC circuits, would also be welcome if available.

Yours faithfully
J. BROWNLIE
Kilsyth, Glasgow

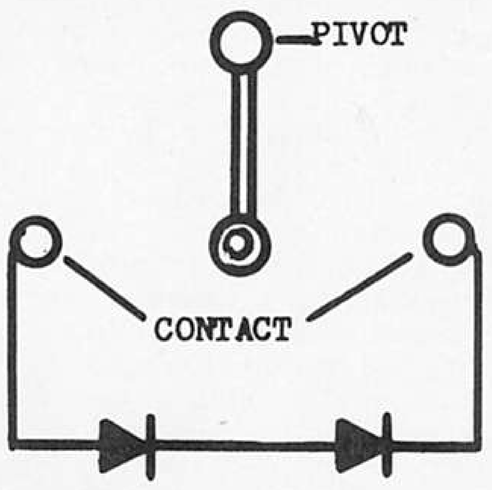
(I regret to say that we do not have reliable technical details, such as torque figures, etc. of our motors as they are marketed as model units rather than commercial appliances. However, we will look into the situation, but, in the meantime, if any reader has facilities and the ability to carry out authoratative testing to produce such figures, we will be pleased to co-operate. In very broad terms, though, the Power Drive Unit - particularly in the higher ratios - and the Marklin EU1071, as well as the EU1072, should do as much as, and more than, the E15R which is now obsolete. The Crane Kit motor is a very small unit with understandably less power than the E15R motor. As Meccano Limited do not now market a transformer, we do not officially recommend a unit of this type, but rather refer to one or other of the Battery Control Boxes we produce. However, any unit which gives the appropriate voltage for a particular motor, remembering that DC motors MUST ONLY be powered from a DC supply (transformer/rectifier), should be suitable provided they give sufficient current (amperage). Most Meccano motors require a maximum current of around 1 amp, or 1.25 amps in the case of the EU1072. If two or more motors are required to be run simultaneously from one power source, then the power source must provide the necessary current, i.e. for two 1 amp-rated motors to operate at full efficiency from a single power unit, the unit should have at least a 2 amp output. Ed.)

Dear Chris,

Readers may be interested in my experence with the EU1071 motor. Compared to the Power Drive Unit, it is not so powerful because of the large gear reduction to the power shaft, and you cannot obtain such a high output speed. However, the motor is considerably more powerful on 16 volts AC, although it does work satisfactorily on 12 volts DC. One drawback is that it goes faster one way than the other.

The main benefits of the motor are the facts that it is so quiet and is such a handy size. The motor really only 'hums', increasing to a high-pitched 'whine', and I like the flat layout. It comes to pieces quite easily to clean, but needs fairly regular oiling on the motor shaft. I find that the chassis of the motor is live and this can cause insulating problems when wiring a model for a common chassis earth.

The motor does not reverse automatically when the current is reversed (DC), but I have improvised a very successful way to arrange this. Slip a piece of insulating tape under the centre switch gear, between it and the two contacts, and solder in a diode between the centre piece and each contact, two diodes in all. Care must be taken to insert the diodes the correct way round so that, when the current reverses, it flows through the other of the two connections:–



Of course, the motor will not run on AC while this arrangement is working as the motor will have a problem!

It is interesting to note that one brush of the motor is of wire mesh and one is of carbon, an arrangement of which some may not have heard. The wire brush cleans the commutator while the carbon one lubricates it.

I think the motor is extremely well engineered and a joy to run and handle. The metal chassis is a welcome return from the plastic, being so robust, and the holes inserted are very handy for initial gearing. In fact, in my Volks Railway Car, I have the motor actually fixed to the axle, the axle going through a set of holes and driven by spur gearing. This is an authentic application of the gearing on the real thing as the motor is merely steadied against the chassis to prevent contra-rotation.

One other tip I have discovered which may be of interest – liquid car cleaner (of the slightly abrasive type) is ideal for recon-

stituting plated Strips; a little patient rubbing, and the most grubby Strips will come out like new!

Yours sincerely
MICHAEL EDWARDS
Brighton Sussex

Dear Chris,

Do We Still Need the M5?

How does the M5 (Power Drive Unit with Gearbox) compare with the other power units in the Meccano range?

The M5 has come a long way from the introductory illustration on the inside cover of the MM for August 1975 showing the new unit powering a small Windmill. Model-makers soon discovered its potentialities beyond that of a toy. Phil Bradley, on Page 76 of the MJ ('Meccanoman's Journal') 3, refers to using it to slew the 35lb super-structure of a Dragline. Four M5's are seen powering the transport mechanism of a 5 metre Shipbuilding Crane on Page 86 of the A/J/O MM.

The popularity of the M5 deservedly rests on its high efficiency. It packs as much power as the now obsolete and bulkier E15R Motor and manages to incorporate a gearbox with choice of six ratios. Efficiency ratings by Mr. H.L.C.de Wijn of the Netherlands were published on Pages 898 and 899 of MJ 31. Results: E15R – 7.8%; M5 – 27.98%; EU1071 – 34.29%; EU1072 – 41.79%. Admittedly, a model-builder is not concerned about how much electricity his motors consume – amounts are small; he can afford to be profligate. But these figures reflect power output of high order in relation to size, all units consuming comparable input.

The M5 also wins by reason of its cost, and in this area is only challenged by the Crane Motor at one-fifth the price.

The M5 has one important weakness inherent in its plastic construction and relatively flimsy output bearings. Phil Bradley, in the article already mentioned, refers to the need to avoid heavy end-thrust forces on the output shaft. Excessive side-thrust should also be avoided and, except under light load or where space does not permit, drive should be through a secondary shaft connected by a Universal Coupling or, as in Eric Taylor's Giant Level-luffing Crane, by two 1" Bush Wheels fitted with Threaded Pins. Excessive side-thrust can cause the gearbox casing to shear off the frame. I find it can be secured back in position by use of a cyanoacrylic cement ('Super Glue').

Low current consumption makes battery operation practical, highly desirable for self-contained operation. I prefer nickel-cadmium batteries for their heavy current, even from pin light size, and the long life with repeated chargings. Charges are readily available, although the electronic enthusiast will probably build his own.

Remote control reversing on a two-wire system is directly obtainable and is another desirable feature that needs no emphasis.

The 60:1 ratio should be used with caution where heavy torque is required, because this may lead to jumping of internal gears. Better to use a lower ratio with external gear reduction.

Some multi-lingual instruction sheets warn against oiling. This is to minimise softening of the plastic which could occur with some oils, and also possible commutator failure due to over-oiling. I have found that these units **DO** need occasional light lubrication after some hours of use and I have successfully used the special oil available for use with N–scale locomotives, for example La Belle No. 108, obtainable from model railroad suppliers.

Yes! We need the M5. Many of us need several of them!

Yours sincerely
KEITH W. CAMERON
Ary, Kentucky, USA

Dear Chris,

Do We Also Need the EU1071 and the EU1072?

The EU1071 with its 34.29% efficiency rating joins the M5 as a powerful unit, deceptively so considering its size. Although the output shaft carries a plastic gear, the bearings are sturdy, side frames are thick, and the unit is huskier than the M5. However, it lacks the advantages of remote reversing and a multi-ratio gearbox, and it is a little more expensive. In some applications the 1071's slim figure will fit where the M5's length is unsuited. The output shaft projects on both sides of the motor – an advantage. However, a flat ceramic suppressor capacitor blocks one of the base holes. Brushes are easily renewed. It is noted, however, that the non-changeable brushes of the M5 are rated as 1,000 hours running capacity.

The 1071 can be easily adapted to three-wire remote reversing by carefully soldering two wires to the upturned portions of the two reversing contacts. Common connection is made to the left-hand of the regular motor plugs. The switch is disabled with a small piece of tape.

The 1072 has an efficiency rating of 41.79%. With current rating comparable to the E15R, this would make the 1072 about five times as powerful. We will certainly see more "Forks slipping round Collars" (see Michael Edwards' letter on Page 66 of MM A/J/O 1977). The 1072 *looks* the part, has provision for three-wire remote reversing, has two built-in reduction ratios, replaceable brushes and very husky construction. It is expensive, but I cannot envisage it ever wearing out. So I recommend purchase of three each – see Dr. Suttle's note at foot of column four, Page 66, A/J/O 1977 MM.

Remote reversing of a motor offers advantages as diverse as those in my Automatic Elevator (Model Plans 58) and Ron Fail's Weighing Machine with Self-balancing Steelyard - MM 3.68). The ingenious mechanism of the latter is made possible by the light weight of the M5. A single-pole double-throw switch is used for reversal and a centre-tapped power supply is required. The Automatic Elevator uses a Meccano Relay for reversal of the motor operating the cage. If an M5 is used for this purpose, a centre-tapped power supply will be needed. However, if a 1072 is used, its three-wire system will allow operation on a conventional two-wire supply.

It should, therefore, be evident that the new motors add considerably to the choices available to model-making and should increase the already vast potential of the Meccano system.

The passing of the E15R deserves an obituary to it and its long line of illustrious ancestors, dating back to the side-plate motors first introduced in 1916. They have served Meccano well.

Yours sincerely
KEITH W. CAMERON
Ary, Kentucky, USA

NEW MODELS FOR OLD

Dear Mr. Jelley,

To all those Meccano Engineers young and old who are look for for models to build, let me say that we do not need an "Aladdin's Lamp" or a conjuror's wand to produce new models for (or from) old. A certain amount of ingenuity, thought, inventiveness and patience will transform some of the old veteran models into "new ones". In other cases, as I will show, it will help to bring some of the Super Models down to the range of the less-affluent model-builder.

I have found a good deal of enjoyment from going through both the old and new manuals, Super Model Leaflets, etc. and re-building them with alterations to their appearance, style and in some cases their gearing. Enough said; let me illustrate:

1927–36 Super Model Leaflets:

Motor Chassis No. 1. put some bodywork to this model and hinge it to the chassis so that the mechanism can be seen when required. This has the advantage that it becomes unnecessary to turn the model upside down to see the 'workings'.

High Speed Coaler No. 2. I built this Ship Coaler recently, but instead of using the travelling truck which goes to and fro, I replaced it with a conveyor belt made up of the Meccano caterpillar track. Inclined plating flanked the track in the shape of a 'V'. I also modified the gearbox and dispensed with a lot of the Sprocket Chain.

Block Setting Crane No. 4. Many enthusiasts must have longed to build this model, but have been unable to do so because of lack of parts and money, not to mention space. I scaled down the model to two-thirds its original size by substituting 9½" Angle Girders and Strips for 12½" ones, 18½" for 24½", etc. The mechanism was also suitably adapted. The saving in the weight of the model makes it easier for one-motor operation.

Single-Cylinder Steam Engine No. 11. I doubled this model up into a twin-cylinder engine. It only involves widening the case and the cylinder block and adding another crosshead with its accompanying 5½" flywheel.

Another idea is to build the shell of a small factory, installing the Planing machine (No. 17) and the Vertical Log Saw (No. 23) together with a small lathe. To see them working from overhead shafting either together or separately, is most fascinating.

Grandfather Clock No. 14. The casing can be retained, or modified according to requirements and the mechanism of the No. 1 Clock Kit can be installed. The taller the casing, the greater is the length of drop of the weight and it will therefore run for a longer period.

Revolving Crane No. 18. I mounted this on a tall base, fitted an electric motor and closed in the operating end to form a cabin. The result was most pleasing.

Warehouse with Lifts No. 31. Make this model realistic by filling in the outside, fitting more floors and changing the gearing from 'Worm drive' to ordinary gearing. To make it even more presentable, build an entrance hall onto the front at ground level.

For those readers who have recourse to some of the old Manuals, there are a number of models which can be vastly improved:

Instruction Manual 31.57. (Sets 5–7).
The Jack Knife Bridge (6.23). Fill in the centre tower with plating, fit an electric motor and smarten up the end approaches.
The model Battleship (6.38). This model built with the present flexible plating instead of the Strips makes an excellent production.
The Revolving Aeroplanes (6.7). When I built this model I fitted an electric motor to the rotating beam. The current was picked up from the circular insulated strip. I modernised the 'planes'. The result was pleasing.

Three models listed in Manual 29 (sets 4–7) are worthy of attention:
Swing Bridge (4.8). By extending the base, building approach roads and adding an electric motor, a really splendid model can be built.
The Beam Engine (6.8). I extended the base and made it into a double acting beam engine. In operation it looks most effective.
TheVertical Steam Engine (6.13). By using a base composed of 24½" Angle Girders and extending the framework, I turned this into a twin-cylinder model. Another refinement I made was to support the base on 5½" Angle Girders which were attached to another base. In-between the two floors I put a horizontal boiler and various other items such as pumps, etc. I hid the electric motor inside the boiler.

To come up to more of the recent Manuals such as 456/62 (Sets 4, 5 and 6), the Swing Bridge (6.16), when scaled up to twice its size with the addition of a motor (hidden under the centre plating), becomes a very nice model. The Shovel, model 8.11 in the 78/62 Manual, Sets 7 and 8, can be vastly improved by adding the new crawler track.

I think that I have said enough to get you going once again on some of these splendid models.

Yours sincerely
R. S. DRAPER
Grays, Essex

Dear Sir,

The general construction of the Ding-Ding Tramcar by Jim Gamble in the October 1974 MMQ is quite satisfactory. However, I have found that, if the Meccano builder wishes to speed up the drive to the bell platform of the Tram, he can use two 7/8" Bevel Gears, Part No. 30, in the gearbox. Only one Worm drive is necessary with this arrangement and also the timing sequence to the bell platform cams is very effective.

From a Meccano builder,

Yours faithfully
G. G. FINNIS
Hadleigh, Benfleet, Essex

Dear Sir,

Twenty-one years ago (1956 p. 590/591) Meccano Magazine published instructions on making a Meccano Synchronous Electric Clock. Over the past few years I have constructed two such working models and my present Clock, which has been going for over three years non-stop (except power cuts!) has been slightly modified in three ways:

1. The Clock is enclosed in a completely transparent perspex rectangular case held together by Angle Brackets so that the Mechanism is clearly visible for all to see.
2. The dial is made up with a Circular Girder using Fishplates at the hour positions.
3. An added refinement is a DAY INDICATOR. This consists of a 3½" Gear Wheel, Part 27b, freely mounted on the extended minute spindle, around the periphery of which is glued a circular strip of paper subdivided into seven equal divisions equal to 19 teeth each. In each division is printed a day of the week and thus the Gear Wheel must do only one complete revolution per week.

In the original mechanism, the hour hand going round twice a day is mounted in a Socket Coupling and is driven by a 19-t Pinion. An additional 57-t Gear Wheel mounted on a separate Rod, but engaging with this Pinion, also does two turns a day. This Rod also carries a 25-t Pinion in mesh with a 50-t Gear Wheel on another Rod which reduces the revolutions to one a day. On this Rod, and in mesh with the 3½" (133-t) Gear, is a 19-t Pinion, so finally reducing the revolutions to 1/7th per day, i.e. one complete turn per week. The transparent case allows the day shown to be visible at the top of the Clock mechanism.

My main reason for sending this letter, however, is to point out that the most difficult part of the construction, i.e. winding the two field coils from 2 x 65 yards of 36swg dcc wire and mounting them on cores of twelve 2" Perforated Strips as instructed in the article, can easily be overcome by using two Meccano Cylindrical Coils with their Cores (Part Nos. 522 and 527). The Coils, connected in series, are run from a 24 volt AC Transformer.

I have successfully reproduced this motor drive of the Clock using these parts and, in fact, have tried out other rotors of six and four poles, using Rod and Strip Connectors on Bush Wheels, giving speeds of 1,000 and 1,500 rpm in addition to the 750 rpm required for the Clock. Perhaps a re-issue of the instructions incorporating these Coils may interest your readers?

Yours sincerely
A. N. BOSCOW
Warrington, Cheshire

Dear Sir,

I am writing to you after reading the letter from Mr. R. H. Baird on Page 67 of the April/July/October 1977 issue of Meccano Magazine.

When young, we used my Father's old Meccano Set – this was a large collection of pieces, all pre-war and many of the 1920's vintage. The Instructions Books covered all the Sets of those days and is now missing the first and last twenty or so pages. Some models stick in my mind, however; vis. a Brewer's Dray, a Weighing Crane, a very nice Portable Crane (garage crane, I suppose), a Big Wheel, a Wire Rope-making Machine, a Bucket Dredger, a Bus, a Touring Tramcar – I could go on for ever!

Now the crux of the matter is this: I have bought the two current Books of Models and, quite honestly, I don't find the models nearly as interesting as in the old Book, and the Flexible Plates nearly as versatile as the Strips. So is it possible for any reader to identify the old Book of Models and advise me as to where I might find a second-hand copy, or a facsimile thereof, for my son? With it, I shall be able to make up the collection I have into one of the sets for which the Book was designed.

Yours faithfully
R. W. BRICE
17 Dunslade Grove
Market Harborough, Leics.

* * *

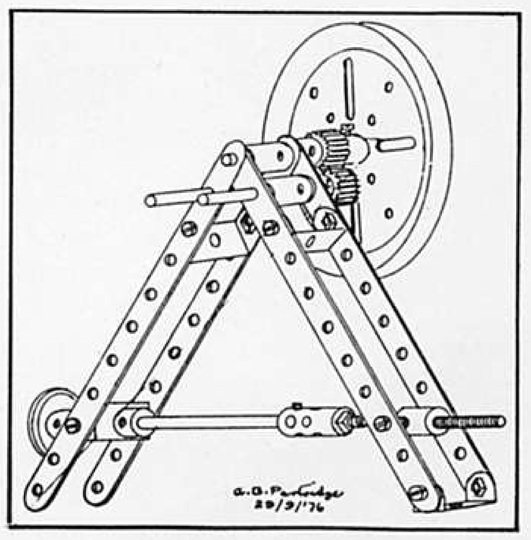
Dear Mr. Jelley,

Strip Rolling Machine, Economy Version

When I wrote my note on the above (MM January, Page 96) I did not know it would be printed along with 'Meccanoman's' original version. You quite rightly shortened my note, but I think a few points which would be useful to model-builders got left out.

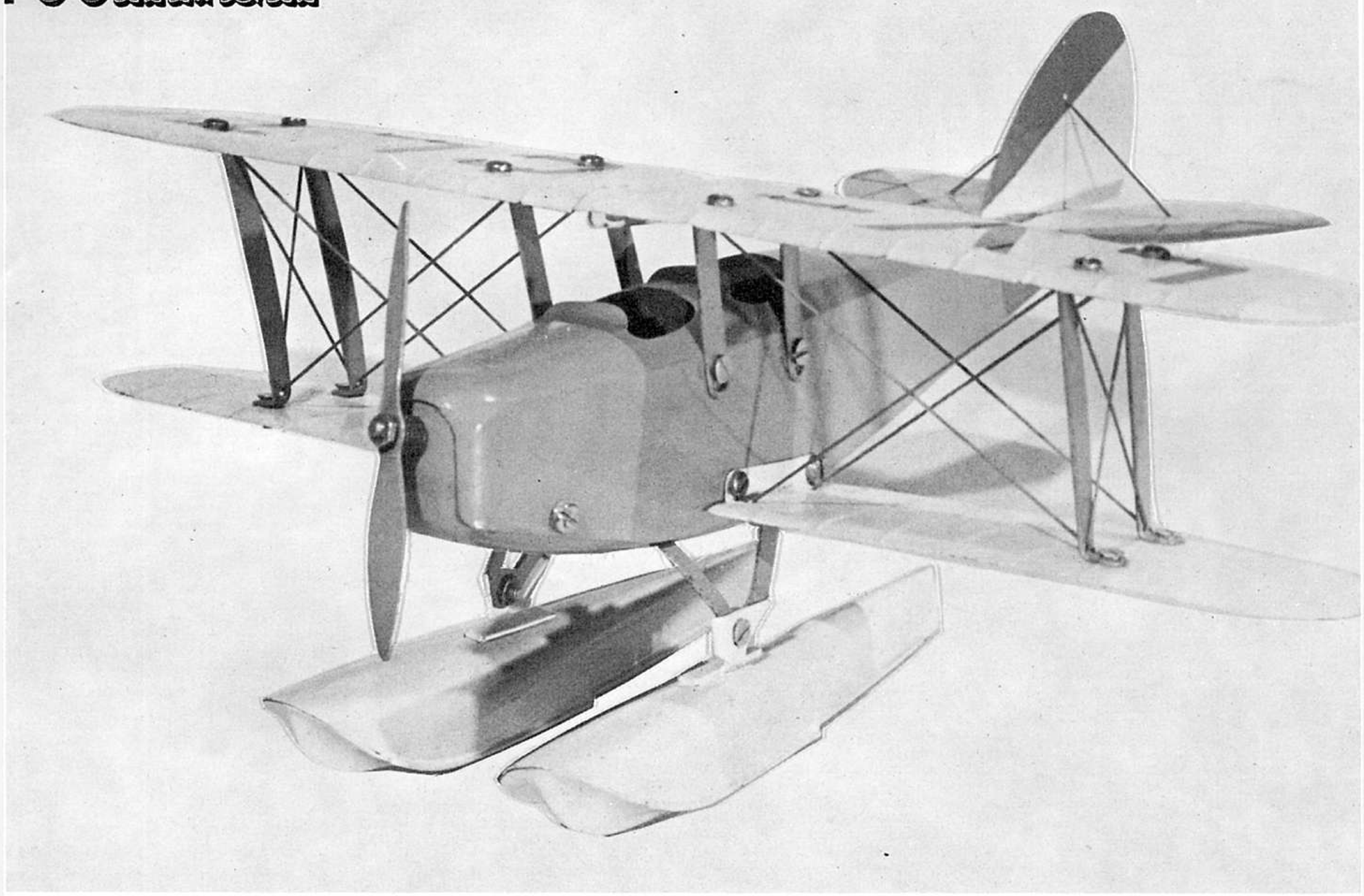
1. Each side of each arm consists of two 5½" Strips separated by Washers. These are interleaved on the top axle. This is "robust" enough to be used many hundreds of times. If use will run into thousands, more Strips may be added.
2. The rollers are bosses from old-style Road Wheels. These are frequently found damaged in second-hand collection and the bosses are easily tapped out of the conical discs. The boss has fewer holes than the Short Coupling and runs more smoothly. Round each screw hole the brass is often slightly raised – it should be filed down.
3. Each Rod should have a 'flat' filed on it to receive each Grub Screw or Set Screw. Doubling the Screws does not add anything to security.

Yours sincerely
ALAN PARTRIDGE
Sutton Coldfield, West Midlands



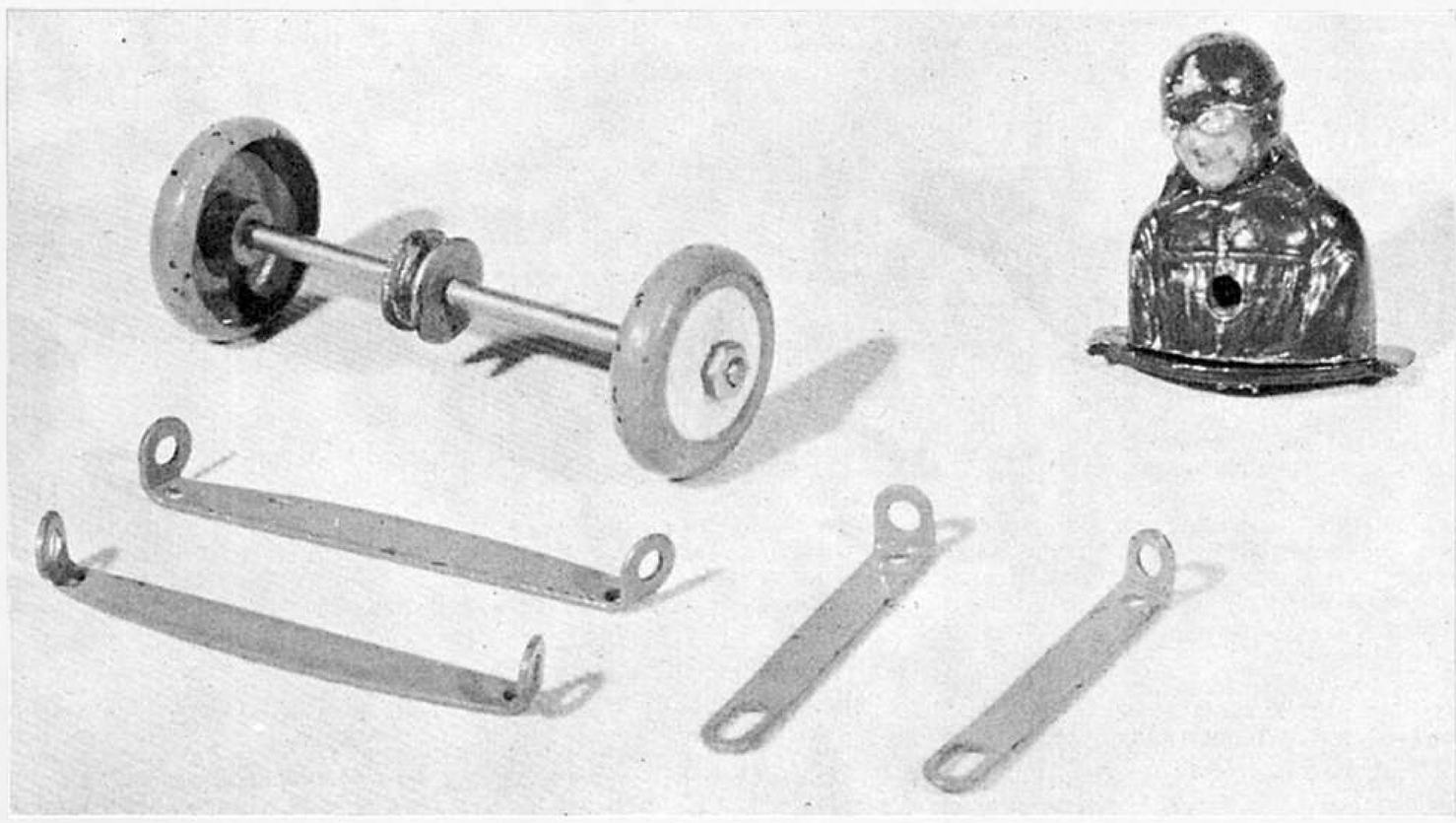
COLLECTORS' CORNER

by B.N. LOVE



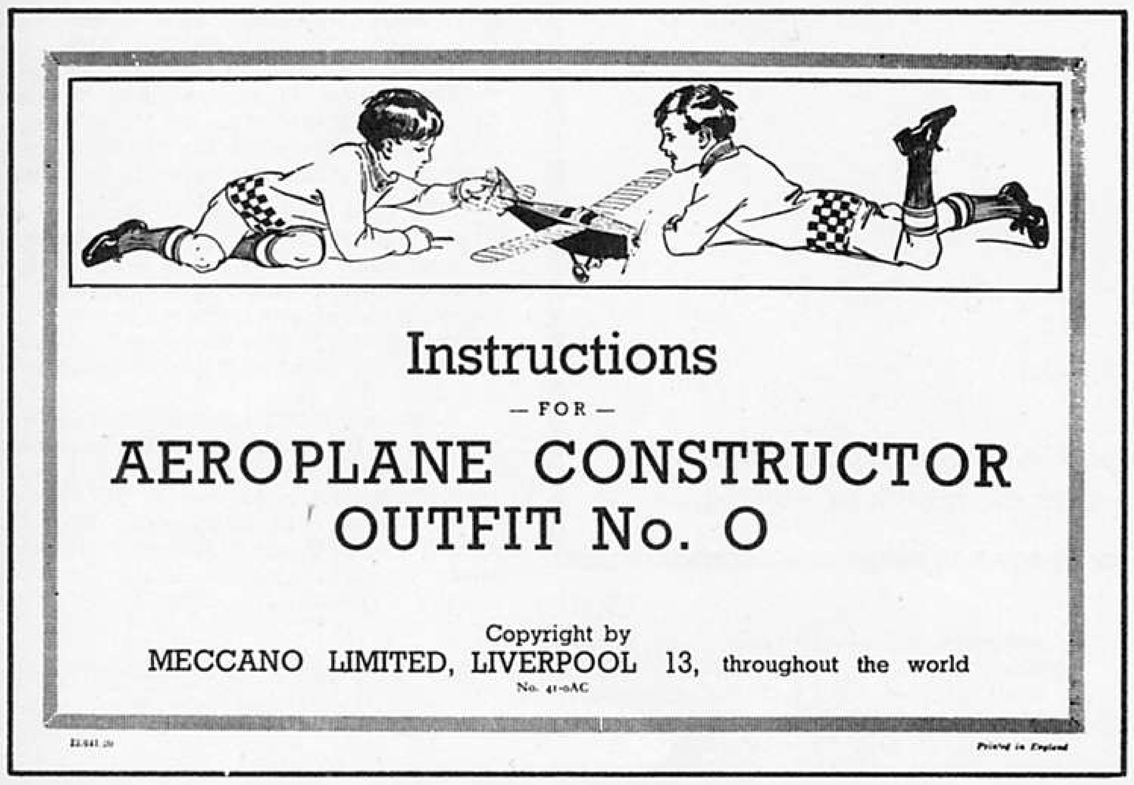
THE No.0 AEROPLANE CONSTRUCTOR OUTFIT

Fig. 2, below: the additional parts supplied in the Outfit for landplane models. Note the hole in the Pilot's midriff, this acting as a journal for the tail end of the propeller shaft!



Rapid strides were made in the development of light aircraft during the 1930s and Frank Hornby capitalised on the widespread interest in aviation by introducing Meccano Aeroplane Constructor Outfits in 1931. These were a recognisable extension of the existing system with simple parts which could be attached by standard Meccano Nuts and Bolts and many of the parts had rows of holes at standard spacing. At the same time, the Meccano factory was making use of highly skilled toolmakers and precision machines, like jig borers, to make press tools for more sophisticated products in heavy-gauge metal, the first of these being the very successful range of Meccano Motor Car Constructor Outfits. This was the first real departure from standard parts as every item was purpose designed and beautifully formed in the shape of bodywork, mudguards, radiators, bumpers, steering gear, etc. True, the parts were interchangeable among themselves, but as smaller holes were used in the limited perforations of the new motor car parts, they were not designed for, nor really suitable for, use with standard Meccano parts.

Within twelve months of introducing the No. 1 and No. 2 Aeroplane Outfits, a smaller set using quite different parts, superior in form



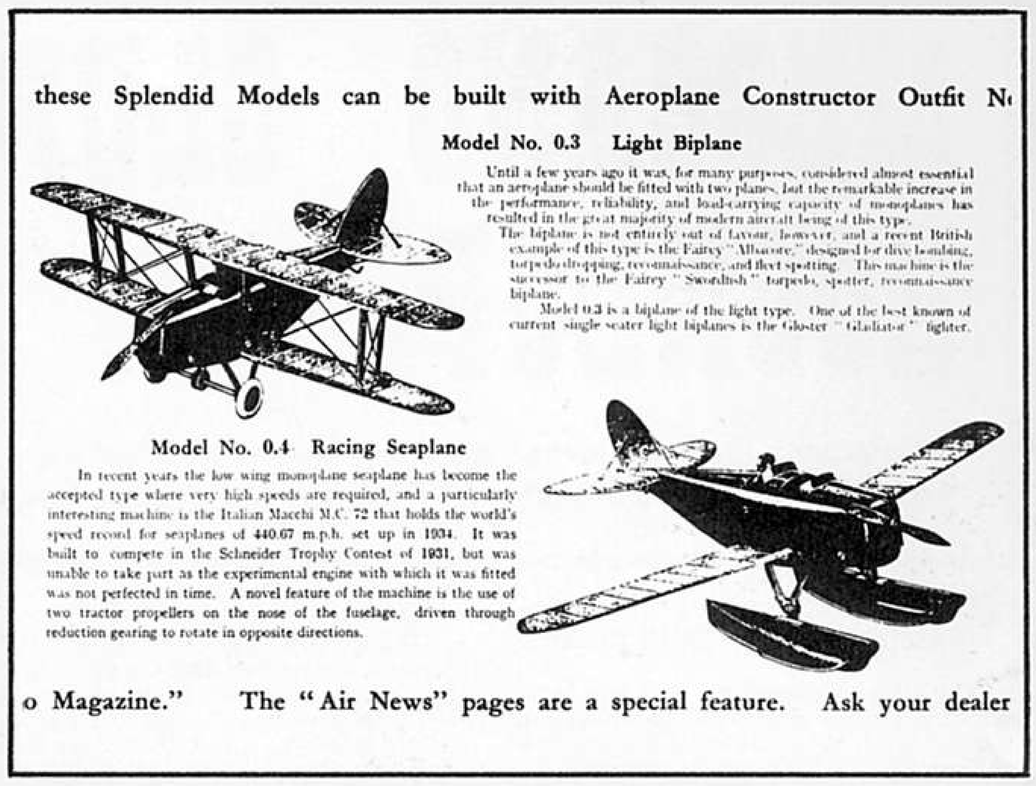


Fig. 1, left: a Bi-plane with landing floats made from a pre-war No. O Aeroplane Constructor Outfit and fully restored to its original blue/ivory colour scheme. Fig. 3, above left: the front cover of the Instructions Manual for the No. O Aeroplane Outfit printed as late as 1941. Fig 4, above right: a page reproduced from an Aeroplane Constructor Manual showing two alternative versions of aeroplanes built from the No. O Outfit

and finish, was marketed for five shillings as the No. O Aeroplane Constructor Outfit. Although limited to six different models in the manual of instructions, this outfit had the advantage of rapid assembly (almost 'instant' results!) due largely to a one-piece upper fuselage section and a heavy-gauge metal under-belly with integral undercarriage struts. Moreover, because this part was drilled and tapped to take six screws, the frustration of fiddling with internal nuts in confined spaces was eliminated. Lesser screw holes and a finer screw (6 BA size) with a beautifully polished and plated shallow head gave almost uninterrupted and elegant lines to the O Set model aeroplanes. In other words, the technique of producing the Motor Car Outfits was applied to an aeroplane set, the same size and style of 6BA special screws being used for both products.

An example of one of these pre-war treasures is shown here in the form of a seaplane rigged as a biplane, but landplanes could also be made from this set. Fig. 2 shows the landing wheels which were attached to a special small-diameter shaft screwed at both ends to fit a 6BA thread inside the landing wheels, locknuts being used to retain the wheels in place. A ½" Pulley was permanently fitted to the landing wheel shaft so that a rubber band drive could be taken to the propeller shaft which was fitted with a similar permanent pulley. A pilot was provided with the outfit and his painful job was to receive the rear end of the propeller shaft in the middle of his stomach! Normally he had a fixing bracket with two bent-up side lugs, tapped 6BA so that he could be directly screwed into either cockpit, the rear position being occupied when the propeller shaft was installed. When the pilot was fitted in the forward cockpit, the propeller was attached by a bolt from inside the nose section, the boss of the propeller also being tapped 6BA.

In the late 1930's, civil registration numbers were applied to wings in the No. O Aeroplane Outfit and plane spotters will identify the Argentinian registration on the author's model illustrated here. I am indebted to Dr. Jorge Catella of Buenos Aires for the restoration job which he did to the overall paintwork on this model. All of the struts were pierced with tiny holes top and bottom so that wing bracing could be added by means of a fine blue hank of cord provided with the outfit. This set remained in production right up until 1942 when it appeared in military camouflage before finally being discontinued in the same year.

Fig. 5, below: an illustration of a No. O Outfit Monoplane reproduced from a pre-war Meccano products catalogue

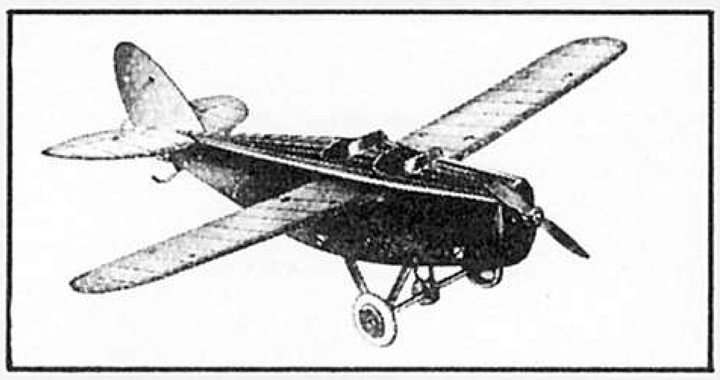
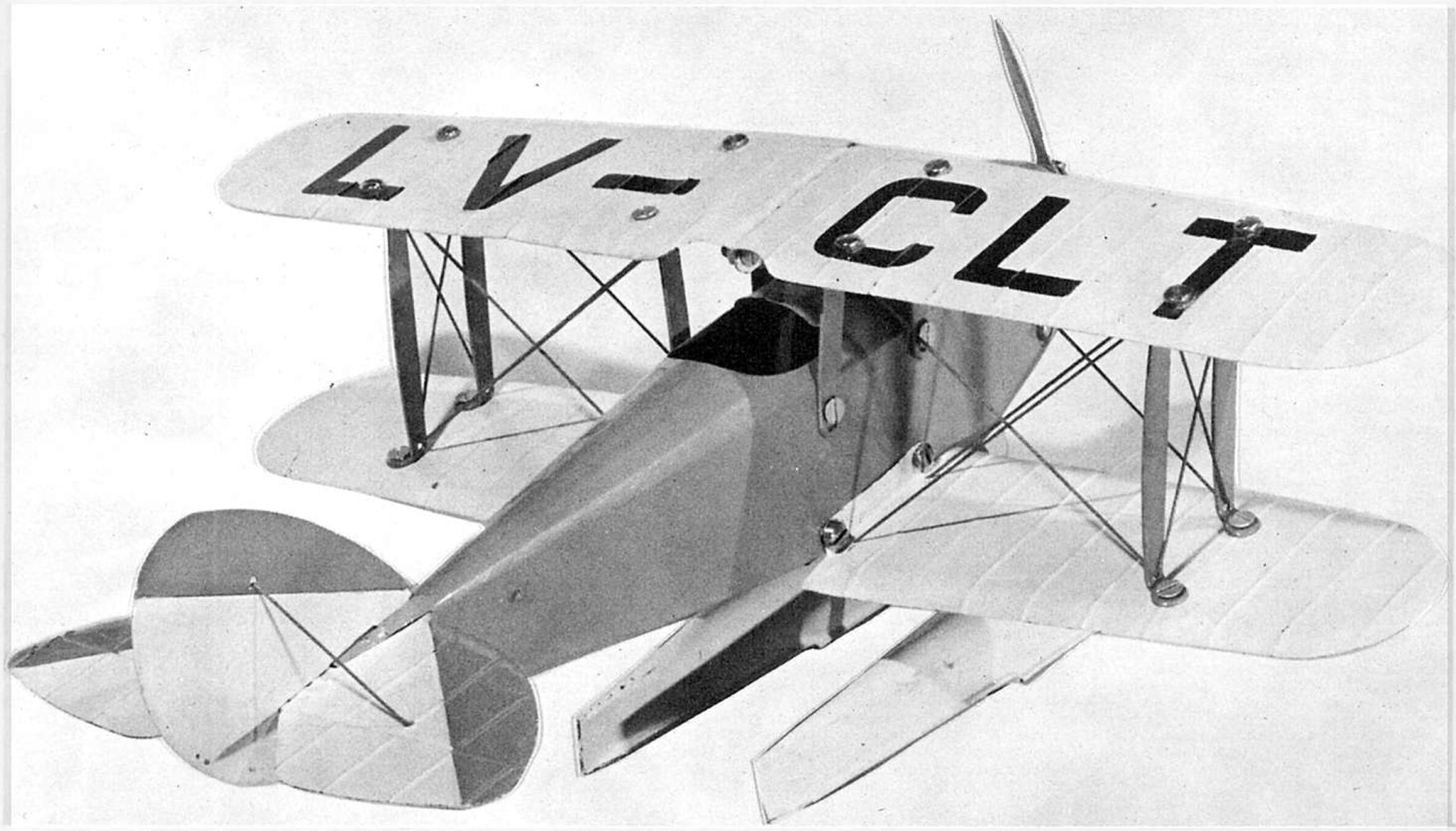


Fig. 6, below: a rear view of the floatplane shown at the top of the opposite page. Note the Argentinian registration letters on the mainplane – significant in that the restoration job on the Author's outfit was carried out by Dr. Jorge Catella of Buenos Aires. It was possible to build a Bi-plane or a Monoplane with the outfit, both these in floatplane or landplane versions – the famous Meccano versatility!



MECCANO CLUB ROUNDUP

All Meccano Clubs are invited to submit reports for these pages. Report should be approx. 350–400 words long and should reach us by the end of the second month before the month of publication.

GUISBOROUGH MECCANO CLUB

The Chess Competition that was mentioned in the last MM notes duly took place and we won hands down. We are now challenging the local senior school. We attended the Meccano Exhibition at Stockton on February 18th and I thought it was very good. There were some excellent models on show and, at the time we arrived, there were not many visitors present so we were able to ask questions of the various exhibitors.

We have a series of examinations which I set the members – Third, Second and First Class – for which a Certificate is awarded (I took the liberty of photostatting the old Meccano Guild Certificate and altering the wording). The exam consists mainly of questions on Meccano parts and mechanisms. So far we have two First Class passes, Paul Garbutt and Richard Ing; two Second Class passes, Russel Swainston and Timothy Ing; and one Third Class pass, Mark Yule. Members have to obtain a Third Class pass before entering models built from outfits above Set No. 3; a Second Class pass before entering models built from outfits above Set No. 6, and a First Class pass before entering models built from outfits above Set No. 8.

We are hoping to go on a map-reading exercise this month (March) in which the children will be given a map reference which they will have to find, and then go to where they will be met. In the event of getting lost, they will have the actual location of the meeting place in a sealed envelope, but anyone who opens it, except in real emergency, will be disqualified.

A. Ing, Leader
5 Scarteen Close,
Guisborough, Cleveland

MIDLANDS MECCANO GUILD

Many thanks to all who sent cards to Vera and I over the festive season. I am trying to reply to all the letters I have received during the past few months.

Heartiest congratulations are extended to Roger Wallis and John Bridger for their efforts to produce a Guild Gazette. A very worthy job has been done, and now it's up to all members to keep it going.

The Town Hall at Stratford-upon-Avon has been booked for April 29th, 1978, from 11.00 am. until 6.00 pm. for an exhibition in aid of the local St. John Ambulance funds. A cold lunch will be provided and I do hope all who can will support this effort.

Ian Henwood and his friend, Ian, are to be congratulated for their appearance on BBC1 TV in the "Young Scientists of the Year" programme. Their effort with the differential analyser gave them second place in the round. The problem set was solved correctly; the same answer as with the electronic computer was received, but oh! how I would like to screw the necks of some of these professionals who belittle the Meccano system! These people just cannot see that people using Meccano are engineers with ready-made parts, just the same as using a lathe in a workshop and producing an item which takes years to complete. In my opinion, this is where Meccano Limited failed. They aimed too low; kept their advertising to boys instead of including adults.

Turning to Stoneleigh 1978, the engineering section of the show has been moved to the Tate & Lyle Hall, which is a large exhibition hall on the main avenue. All sections of model engineering are under the one roof. The move has been necessary due to the reorganisation of the showground to accommodate a huge vintage car display which is the theme of the Town and Country Festival this year. The local squad have been to 'vet the place' and have claimed a layout of 30' x 10' tables.

David Goodman, his son Matthew, Stephen and myself spent a pleasant afternoon with mutual friends of the North Midlands Meccano Group. It was a real family gathering, informal and very pleasant set in a small village hall which made a nice change from the usual concrete environment of today. The local hostelry was very pleasing, too!

Phil Bradley has written to say he is mending slowly and has to take everyday life very easily. He still hopes to get to Alcester in the near future. I am sure we all wish him well and hope he will soon be with us once again.

Anyone interested in joining the MMG should contact me at the address below.

Ernest Chandler, Secretary,
86 Clopton Rd, Stratford-u-Avon,
Warwickshire, CV37 6SN.

NORTH EASTERN MECCANO SOCIETY

The Autumn period was occupied totally with preparations for our Exhibition last November, a report of which appears elsewhere in this issue.

Meetings during the Winter have been very well attended even though the problem of bad weather and long journeys in cars did prevent some members from attending for a few meetings. There was the usual expectation of new models at each meeting, with Lorry-mounted Cranes being to the fore at one time.

January and February were mainly spent in making arrangements for our Winter exhibition in Stockton, which looks as though it could be almost as large as our main show. We must be gluttons for punishment to organise an exhibition just three months after the last one, and in another town!

Membership has remained steady, but we are hoping that the Stockton show on February 18th will attract a few more keen builders. We shall also take advantage of any other opportunities which present themselves.

We look forward to another eventful year.

Frank A. Beadle, Secretary,
Greytyles, Yoredale Avenue,
Darlington, Co. Durham DL3 9AL.

NORTH MIDLANDS MECCANO GROUP

The January meeting of the North Midlands Group on 21st January was a most enjoyable event with an excellent show of models both from our own members and from the three Midlands Meccano Guild members who visited us. We have recently gained six new members to our own Group, five of whom were at the meeting and all of whom are heartily welcome. Much of the success of our meetings arises from the willing help given by those who attend and I would much like to thank all who assisted in such matters as table setting-up and clearing away and also, of course, those who gave kitchen assistance – particularly Keith Palmer who has obviously been very well trained by the Scouts and whose help is immensely appreciated.

Two organisational matters currently under consideration are (i) the possibility of moving to a larger hall for the next meeting – on 6th May – since it was a bit crowded last time, and (ii) the possible provision of more "eats" at meetings. More news of these matters in the future but, in the meantime, mention should be made of at least some of the excellent models on show at the meeting. As is inevitable, there were far more models worthy of mention than can be mentioned here because of space, and so I have left it up to the Editor to pick a representative selection from our Newsletter.

Bert Shaw brought a magnificent Rack-and-Pinion Locomotive, finished most attractively in blue Plastic Plates and developed from the GMM Leaflet 56 although heavily modified to avoid the many Marklin parts used by the original designer. A particularly unusual feature was the flexible crawler track used for the incline's rack, the engine climbing this by means of a Plastic Meccano wheel.

Gerald Griffin had, as usual, a spectacular display. His Automatic Crane kept the audience fascinated all afternoon and he also brought an Articulated Lorry and a unique Steering Game which had a kind of electrical maze mounted on a revolving drum. Barry Jessop was another who brought a fun-type model, in this case an intriguing Roll-a-Penny Windmill where the player is not only required to get the penny through the slot, but also has to do so while being liable to have his coin swept away by the sails!

A magnificent model of a Ditch-digging Machine, developed from the current No. 10 Set model, was presented by Tom Osbourne. While the superstructure was generally as the No. 10 Set version, the hull mechanisms and crawler tracks were completely original and utilised two Power Drive Units. The built-up tracks ran on modified road wheels, with very good track tensioning the whole being extremely impressive in operation.

Mike Pashley had his spectacular and typically enormous Excavator going through its multi-motored operation, impressively as ever. He reported, however, that this was its final appearance as it must make way for other constructions. Alan Partridge had a spectacular display of mechanisms, many showing solutions to his "Chuff-Chuff" problem posed in a recent MM, but there were others, too, such as his model of Ferguson's Paradox in epicyclic gearing.

Very many more structures were presented by members and visitors alike and we are only sorry that justice cannot be done to them here. Needless to say, we wish we could mention them all!

Anyone interested in joining the North Midlands Meccano Group should contact:

Geoff Coles,
"Little Court", Bleasby
Nottingham

SOCIETY OF ADVANCED MECCANO CONSTRUCTORS

With much pleasure SAMC received three new members at the March 11th meeting. They were John Fuller of Coventry, Norman Gilbert of Blandford and Peter Greenhalgh of Rhyl. The AGM is normally held at this meeting, but more important was the tour of the models.

Among many excellent exhibits was John Fuller's Crane in blue and silver. This was of most unusual tubular construction using Sleeve Pieces and Chimney Adaptors for the base structure and 2½" Cylinders for the central post. The jib was largely constructed from Screwed Rods clad in Rod Connectors. All motions had been reproduced on a very small scale and the overall effect was most pleasing.

Pat Briggs showed three astronomical models, some based on the Science Museum booklet. These were an Armillary Sphere and a Celestial Globe. Both date from the age when the earth was considered to be the centre of the universe, but are helpful when studying movements of the stars, horizon, etc. relative to the earth. In addition to their usefulness they are highly attractive in appearance and Pat had taken full advantage of his range of parts to accomplish the result. Pat also had modelled a form of Orrery in which, instead of the earth and moon, Mars and its two satellites Phobos and Deimos were the performers.

Paul Brecknell was back with us and he had brought his Diesel Steam Roller. This model had been most carefully built with particular attention to colour. In the main the body was in yellow using Multikit Strips and Angle Girders and yellow Plates. Red Plates were used for the roller and main wheels with a red cover for the driver.

Bert Love had modified the Konkoly power plant illustrated in the January MM to incorporate a beam engine which he had used to actuate a make-and-break switch in a lighting circuit with bulbs at the top of the boiler chimney. This time the model was driven by an electric motor disguised as a dynamo.

Much interesting ancillary material was available at the meeting including some new outfit models and literature with a foretaste of the new colours which will soon be in the shops. By comparison with the models the AGM was a dull affair, the most important item being the date of the next meeting – October 7th, 1978.

D.N. Whitmore (Reports Secretary)
36 Parkhurst Road, Bexley, Kent.

SOLENT MECCANO CLUB

Since the Solent Meccano Club's last report, which appeared in the issue for April/July/October 1977, the Club has staged its first major exhibition, in July last year. Preparations for the 1978 exhibition are now well advanced, and the exhibition will be held at Fratton, Portsmouth on the 13th May 1978.

Our 1977 exhibition was very successful, although it was held in village premises some miles from Portsmouth. We received valuable support from visiting members of the Henley Meccano Society and the Holy Trinity Meccano Club, who all travelled considerable distances to be with us.

The exhibition was visited by more than five hundred people, a very satisfactory result, and a figure which we hope to exceed this year as the venue for 1978 is near Portsmouth city centre.

The Club also exhibited at the Netley Marsh Steam Rally in July, for the second year in succession. This was a three-day rally which most of our members were able to attend, with an excellent display of models. The Club's exhibits, in fact, took up a large proportion of the model tent, not to mention an equally large proportion of the visiting public!

A number of Club members were also able to attend the Henley Meccano Exhibition in September and brought along a good selection of models of all types.

B.W. Williams (Secretary)
7 Thorndike Road, Maybush,
Southampton, Hants SO1 6FN

SOUTH EAST LONDON MECCANO CLUB

The seventh meeting of the SELMC was on the 21st January 1978 at the Salvation Army Hall, Welling at 2.00 pm. Eddie Oatley demonstrated a 5-ton Level-luffing Crane, based on an actual crane seen on the front cover of the November 1958 MM. Two lead weights ensured that the jib was fully balanced which meant that very little strain was put on the motor and cranks which operated the jib. Two power drive motors were used to operate the four crane movements and the model weighed 22 lbs.

Stan Bedford brought a Gantry Crane based on the Set 10 model, but with a few modifications. A separate motor, fitted to one of the main legs, raised and lowered the hook independently of the movement of the trolley. A part-completed model of a Double Fairlie Locomotive as used on the Ffestiniog Railway in North Wales was brought by Geoff Davison. It was taken from the May 1969 MM, but several snags had to be overcome in the construction.

David Whitmore showed a partly constructed model of the Darby Savage Digging Machine as described in "Model Engineer". The scale is nearly 1.3" to one foot and the model uses various gears to enable power to reach the digging forks and wheels, together or separately. A two-speed gearbox is used to drive the wheels, the faster speed being used on roads and the slower when digging. Reverse is accomplished by a Stephenson link mechanism.

Graham Davies' model was a post-war London Transport Bus – the Leyland Tiger PS1 which had suspension and Ackermann steering. He also showed an 8" long Motor Cycle and a Tank just one inch long formed of a Coupling with Sprocket Chain to represent the track. My model was a British Rail Class 08 Diesel Electric Shunting Locomotive, powered by an E15R

motor, which I exhibited at the last meeting.

Other models were as follows:–

Neil Bedford . . . . . Steam Wagon
Adrian Ashford . . Four-speed and Reverse Gearbox
Richard Whitmore . Part-completed Motor Chassis
Charles Yearsley . . . Two half-constructed models – a Loco and a Penny-in-Slot Machine

Also present at the meeting were Bob Walter, Peter Clay and new member Richard Jones. The next meeting will be on 8th April 1978 and anyone interested in joining the club shoud contact me at the address below.

Christopher Warrell (Secretary)
41 Beechhill Road, Eltham,
London SE9 1HJ

STEVENAGE MECCANO CLUB

We can't wait to tell you about our magazine. It's a combined Club journal for the SMC and the Wellingborough and District Meccano Club (Terry Pope's lads), which we have titled "Nutz & Boltz", this name being suggested by Mrs. Faulkner, wife of our very well-known member, Bob Faulkner of Abingdon, Oxon. Neil Alston, the Editor, is planning three issues a year and, wait for it, is prepared to release copies to enthusiasts outside the two Clubs for 25 pence an issue, post paid. But why mess about? The cool thing to do is to send Neil a full year's subscription and sit back and enjoy it! Details from Neil Alston at 11 Gaunts Way, Letchworth, Herts. SG6 4PQ

Our Secretary, Dennis Higginson, fell into the hands of the medics – again – and found himself in hospital for the few weeks before Christmas, plus another bout in the New Year. Members sent him cards and took models along to show him, which cheered Dennis up, and he thanks all those who thought of him. Group D continued to meet, but most of the Club activities were slowed down by Dennis's indisposition.

We can always rely on Roger Le Rolland to fly our flag in Stoke-on-Trent, and he has been doing this by displaying his models in local shop windows. Shops in Letchworth have also been showing the products of Alec Webb, another Club stalwart.

Each of our Groups now has two leaders, not because they are becoming particularly rowdy, but to spread the load a little. The following members have been elevated to joint Group leadership: Alec Webb for Group A; Jock Proud for Group B; Adrian Ogden for Group C and Peter Neville for Group D.

Our younger members did well for Meccano Sets and parts in their Christmas stockings and the first models to emerge have been brought along to Club meetings. Andrew Hewson produced a No. 7 Set Lorry to show Group C; Robert Clark of Group A made a very nice Motor Cycle of his own design, and we shouldn't overlook Barry Ingarfill's Gantry Crane (Group D). Chris Smith and Richard Ferrier both live at Welwyn and they are co-operating in the manufacture of a large Lorry that Group C hopes to see soon.

Dennis Higginson was very touched by a recent expression of gratitude from the parents of a former member, Simon Plummeridge. With the following letter, £3 was enclosed, and this will be spent on Meccano parts for the Club:

"A small token of our thanks for the many hours you've given to Simon, when you've not only taught him about Meccano, but have instilled into him a standard of perfection at which to aim. (signed)Terry & Ann Plummeridge, with our very best wishes."

We now have four members in our Far-Eastern Group in Sri Lanka: Ziard Sha Thahir, A.K.M. Rezui, B.C.M. Amanullah and Mohammed Fadzal. We hope to receive news from them soon to put in a future report.

The following new names have been added to our list of members: Carl Jenkins and Andrew Hewson, both 11 and both from Stevenage; Charles Barnes of Hemel Hempstead and Eric Evans of Luton. And, not officially yet, but we also count in Peter Ingarfill, Barry's father, who usually stays for the duration of Group D meetings.

Eight-year-old Abel Reseigh mended his Mum's toaster with Meccano parts after the shop had declared it a write-off. The toast pops up as before, and fortunately doesn't have ½" pitch perforations!

Anyone who can tell a long bolt from a 6" pulley and who doesn't have a local Club to join is invited to write to Dennis Higginson, in English please, at 7 Buckthorne Avenue, Stevenage, Herts., and become a member of the SMC.

BERNARD DUNKLEY

CAPE TOWN MECCANO CLUB

News from this end of the world is that Trevor Hawtrey has had to relinquish the post of Secretary as it was interfering with his studies; a great shame as he was making such a great job of it. So I have assumed the duty once more as well as being in the Chair, and actually I am Librarian too. We have made an inventory of all our literature and found that we have an enormous amount, mostly in original form, and I lend it out as required.

We held a very successful exhibition to coincide with the Cape Town Festival. There were some forty models on display including Tatchel Venn's magnificent Grandfather Clock, Trevor Hawtrey's large Double Ferris Wheel, my 3ft diameter Roundabout and my 15ft high Dive Bomber which I constructed specially for the occasion. The show ran for a week and was very enthusiastically attended. We exhibited in conjunction with the Cape Town Society of Model and Experimental Engineers. They have always regarded our hobby as a toy they once played around with as kids, but this was something of an eye-opener to them and they have now invited us to join them in another exhibition.

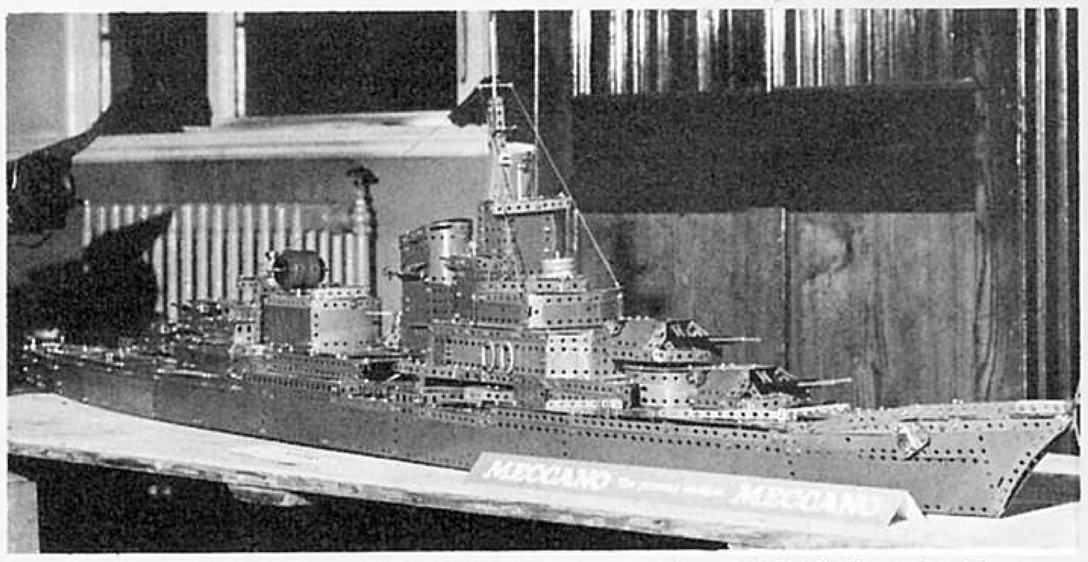
We also did our piece as we do every year at the Lady Buxton Home Fete, and for the first time contributed to a fete run by the Nazareth House, an aged home and orphanage. We are keen to make this an annual event too. Trevor displayed his Double Ferris Wheel again, as well as several other smaller models; Michael Waring showed his beautifully-constructed Steam Roller; Michael Adler had his Orrery and Guilloche Machine, amongst others, and I put on all my models. Unfortunately the ceiling was not high enough to accept the Dive Bomber, but I did construct a Cableway and also threw together a Mantlepiece Clock running on a 9-pole Rotor (three 3-way Rod Connectors fitted with Threaded Pins to increase the amount of 'iron'). I also put together the set 5 Tower Bridge and the kids simply loved turning the handle.

Michael Adler is working on a Container Handling Crane based on those to be seen at the recently completed Container Terminal at our Cape Town Harbour. This form of crane is a highly complex machine simply abounding with interesting mechanical mechanisms and electrical limit switches and interlocks. There is a novel anti-sway device for the 'hook' and even a lift to carry the driver to his controls, and the absence of hydraulic mechanisms makes it an excellent subject for Meccano. Michael is very knowledgeable on the crane and has some excellent photographs and will be pleased to assist anyone wishing to reproduce it. His address is 15 Oak Avenue, Kenilworth, Cape Town, 7700. He has also built up George Gombert's Perpetual Calendar – a most ingenious piece of Meccano modelling.

I have just completed my Baby Meccanoman – a box which, upon pressing a lever, produces 'music' from gongs and bells till the lid lifts up and the baby's hand reaches out and resets the lever and then returns to within. At our January meeting we saw Brian Hodgson's reproduction of Roger Wallis' Grand-daughter Clock, a very neat timepiece, indeed.

Our membership continues to remain small, but we look forward to our armchair type meetings at home and enjoy working towards exhibitions.

Colin Cohen (Hon. Secretary)
3 Bellair Road, Vredehoek,
Cape Town, 8001, South Africa.



Another highly impressive model at the N.E.M.S's Darlington Exhibition was this giant model of a Class K303 Battle Cruiser built by Frank Beadle, Secretary of the Society.

SOUTHERN CALIFORNIA MECCANO CLUB

The Southern California Meccano Club had its Winter meeting hosted by the Club President, Anton Calleia, at his residence in Granada Hills on Saturday, 14th January. Attendance was low due to day-long hard driving rain.

Clyde Suttle, the Corresponding Secretary reported seven new members since the last meeting and that the Club had received the prize for the best table display at the International Toy Buffs Association Convention held at the Huntingdon Sheraton Hotel in Pasadena on Saturday, 5th November, 1977.

Doug Lock won the Best Model prize at the meeting with his 10-wheel Sleeper Rig and Semi-Trailer. Doug also explained a paper on different possible gear combinations. Keith LaBar presented his Self-Reversing Trolley, using a bump switch at each end. Clyde Easterly talked about a Metalcraft Lyons 'Spirit of St. Louis' Airplane Construction Set that he brought along, while Anton Calleia brought out a Meccanograph which he was working on. He asked for comments on ways to improve it – and received quite a few. Clyde Suttle exhibited a 1928 5X Meccano Set made at Meccano's Elizabeth, New Jersey factory. The Set was in mint condition and was regarded as quite a collection item.

Two of the Club members did show up a week early for the meeting. J.J. Van der Ploeg and R. de Sobrino flew down from the San Francisco Bay area on Saturday, 7th January to attend! After Anton had hosted them awhile, they visited Clyde Suttle, staying with him until it was time for them to return to the airport for their plane.

The Club thanks Mrs. Calleia and her daughter for the very fine snacks provided at the meeting.

Clyde T. Suttle
Corresponding Secretary
6062 Cerulean Avenue,
Garden Grove
California 92645, USA

WELLINGTON MECCANO CLUB

The Wellington Meccano Club continues to grow in numbers and, with posters of the coming Convention (April, 1978) on display throughout the Country, creating interest, more members are expected. The WMC 'News' (name changed from 'Club Rag') continues and is now in the third year of publication. The Senior Modellers Trophy was won last year by the Secretary; Andrew Jardine was awarded the Junior Trophy, while Phillip Ngan received the Special Cup for effort.

Early in the New Year, I went on holiday to Dunedin and met several Meccano enthusiasts. When passing through Christchurch, I called on several more enthusiasts, including Bob Boundy, President of the Christchurch Meccano Club, with whom I spent several very enjoyable hours.

Several Meccano modellers have suggested that I print a list of Adults in New Zealand who would like to have other Meccanomen call on them. If any reader over 16 years of age is interested, therefore, please send your name and address to:

DON BLAKEBOROUGH, Secretary
14 Tarikaka Street, Welling 4
New Zealand

"SKY'S THE LIMIT" MODEL ENGINEERING WORKSHOP

Eight boys, average age 12, pre-registered for this metal construction set workshop at the Des Moines Center of Science and Industry, Des Moines, Iowa, USA. They all braved the below-zero degree F. weather to attend the first workshop session on Saturday morning, 28th January 1978. At the end of the series of six consecutive weekly Saturday morning sessions, four boys had attended every session, even though the temperature was below 0 degree F. every Saturday.

In the rush to get the Workshop Catalogue published before Christmas, the workshop description turned out less definitive than desirable. Neither "metal construction set" or the fact that the programme was designed to be suitable for adults as well as boys and girls was included. It had been intentional to avoid the use of any Trade Names.

The programme was well received and briefly covered metal construction set concepts, origins, history, construction techniques, materials and their sources, literature, construction problem solution, clubs and exhibits. A portion of each workshop session was originally allocated for model-building, but became better utilised for analysis of models built by the participants outside the workshop time.

At the conclusion of the workshop, the participants expressed a desire for an on-going programme. To achieve this, a club organisational meeting is scheduled for 8th April, 1978, at the Des Moines Science Center. Metal construction set enthusiasts who didn't take part in the workshop will also be invited to this meeting. At this time, each participant who so desires will be invited to bring a model, which need not be completed, for discussion and commentary.

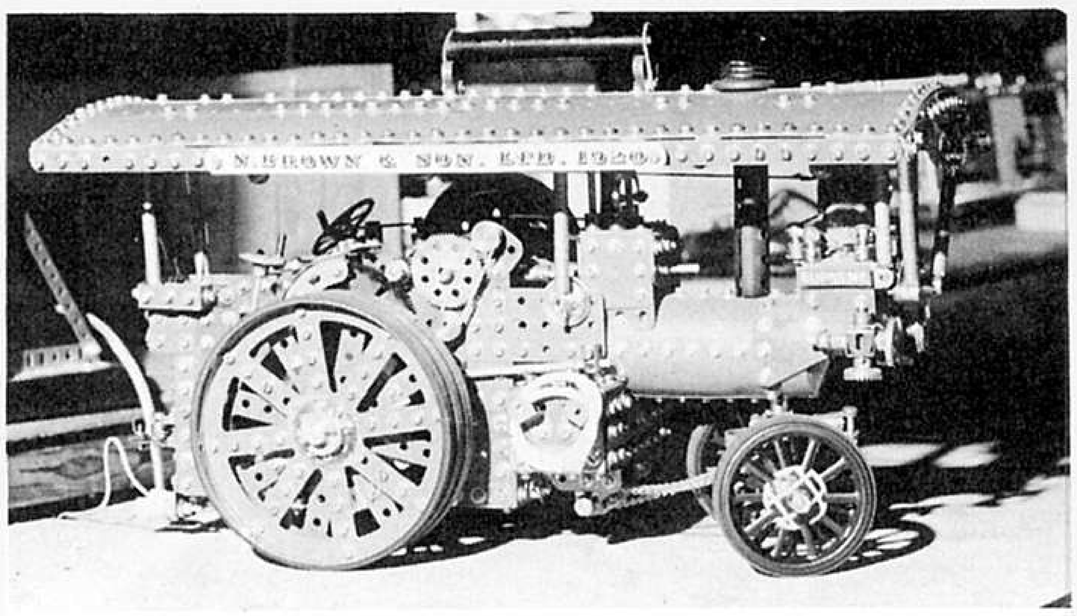
The Des Moines Center of Science and Industry tentative plans for the next year include scheduling a manned weekend display of metal construction set system models in November 1978 and repeating the workshop series starting in January 1979. Any enthusiasts interested in entering a model or large photograph of a model in the November exhibition should contact me.

A special thanks is extended to AVA International (US importer for Meccano Limited) and Gilbert Industries Inc., subsidiary of Gabriel Industries Inc. (makers of Erector) without whose material support and assistance this workshop would not have been possible.

I was the instructor for the workshop and had prepared the lesson plan well in advance to be suitable for presentation to adult or senior citizen workshops as well as to boys and girls. A photocopy of the detailed lesson plan is available from me at the address below.

R.E. (Bob) Bowley,
3916 78th Street, Des Moines,
Iowa 50322, USA

Built by Norman Brown of the North Eastern Meccano Society, this excellent Traction Engine was photographed at the Society's Meccano Exhibition held in Darlington last November.



MM ★ COMPETITION ★ PAGE

CHINESE CHARIOT – ECONOMY DRIVE
(Alan Partridge's solution to his competition set in the last MM)

The Chinese South-Seeking Chariot can be made with only 5 gears! Although I tried to raise a doubt in competitors' minds, the use of a differential is essential. The main saving of gears comes from placing this transversely, as in a motor car. Now if a car is pushed along, with the clutch out, the movement transferred to the drive shaft is the *sum* of the rotations of the road wheels (halved and usually then stepped up). The *difference* produced by cornering is absorbed in the mechanism. We want the opposite effect – to absorb the *sum* and transfer the *difference* to a pointer. This is achieved extremely simply by putting a reversal in one half-shaft. Then the differential adds the rotation of one road wheel to minus that of the other – which is the difference as required.

In Figs 1 and 2, the Pinion furthest to the left is a reversing pinion. The other two Pinions, the large Contrate, and the 50-toothed Gear constitute a 1:1 epicyclic, or minimum, gear differential, as I described in Meccano Magazine 1977 No. 2, page 70. The chief difference is that the Pinions are outside the cage formed from the Contrate and a Wheel Disc, overhanging to the left. This allows the central one to mesh with the reversing pinion. The Rod which passes through the centre of the cage is stationary, held in two Collars suspended from the chariot by 1" Screwed Rods. One hangs from the centre of a 1½" Strip, the other from a pair of Fishplates, the angle of which must be carefully set to keep the Contrate in mesh with the 50-toothed Gear. The Contrate, with its cage, and the Pinion next to it are both loose on this Rod. Fixed to the Rod is a Coupling which provides a bearing for a 1" Rod which carries the reversing pinion, connected to the Road Wheel on the left by Universal Couplings.

The length of the whole mechanism is 9½", so wheels 9½" diameter are needed. Each is made from 8 – 4" Stepped Curved Strips, No. 89b, connected to a Face Plate by various Strips. It is, however, not essential to have wheels the same diameter as their distance apart. A smaller Pinion in place of the 50-toothed Gear would require larger wheels, and a larger Gear would allow smaller wheels.

While we use a lower pointer, instead of a tall Chinaman, the chariot can be turned upside down within its wheels. What does the pointer do then? If, after a bit of running about like that, the chariot is brought right way up again, can one say where the pointer will be? If you can't work out the answers (or even if you think you can!) built it and see!

* * *

The above was written when the puzzle was set. I have since been in correspondence with Prof. Sleeswyk, Groningen, Holland, who has made a fresh study of the ancient Chinese documents. He has shown that there were *two* different designs. One was a crude affair using ratchets. The other was a beautiful symmetrical mechanism using two differentials. I hope to write a separate article about this. Prof. Sleeswyk showed that my mechanism (Figs. 1–3) can be re-arranged so that the output of the cage goes to the pointer by universal joints instead of gears, see Fig. 4. That gets the number of gears down to three.

This set me thinking about the device I showed in MM January 1978, page 35, No. 12. If the input and output shafts are in line with each other on opposite sides of the oscillating rod, this produces a gearless reversing mechanism. Fig. 5 shows this and other applications. Fig. 6 shows how this could be used to produce a differential with only two gears – an improvement on my previous solution to that problem. Now, if this is used in the Chinese Chariot, and another such device for the reversal of one half-shaft, we would have a solution with only two gears. This is the best solution to the problem in the way I worded it. But, if instead of "The two wheels and the pointer are to be connected by gearing...." I had put ".....are to be connected with a minimum of gears....." then the solution is no gears at all! When using the oscillating devices one cannot use Prof. Sleeswyk's re-arrangement to extract the motion of the cage, but Fig. 7 shows how it can be done using two pairs of eccentrics.

ADDENDUM

The above was written before solutions were received. Sr. R. G. Torrent of Madrid hit on the principle of using only two gears in the last paragraph of above, but his design was not fully worked out in Meccano. Fig. 8 shows the Meccano version.

Mr. Noel C. Ta' Bois found a different two-gear solution from the above and a photograph of his model is shown in Fig. 9. This is the winning entry.

Please note:– Fig. 4 is incomplete. The pointer rotates in the wrong direction. Above the body of the chariot there should be, instead of two Universal Couplings, a gearless reversing mechanism, such as "Chuff-Chuff" competition solution No. 8. (January MM).

Fig. 1: an underneath view of a 5-gear Meccano mechanism for a South-Seeking Chariot developed by the Author.

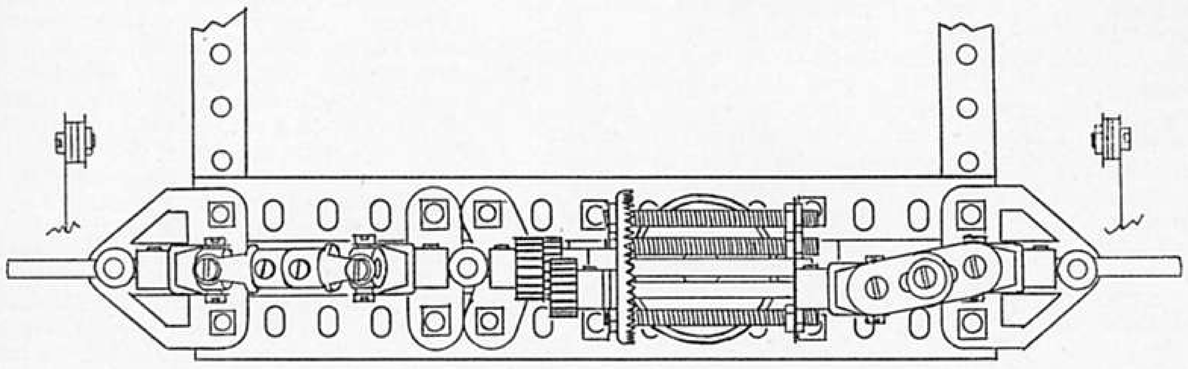


Fig. 2: a front view of Alan Partridge's 5-gear version of the Mechanism.

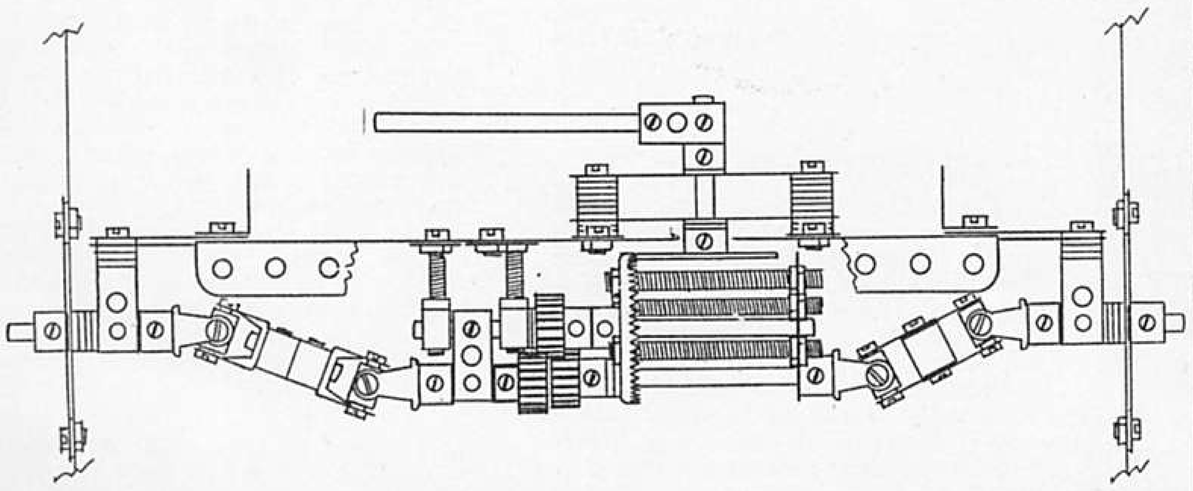
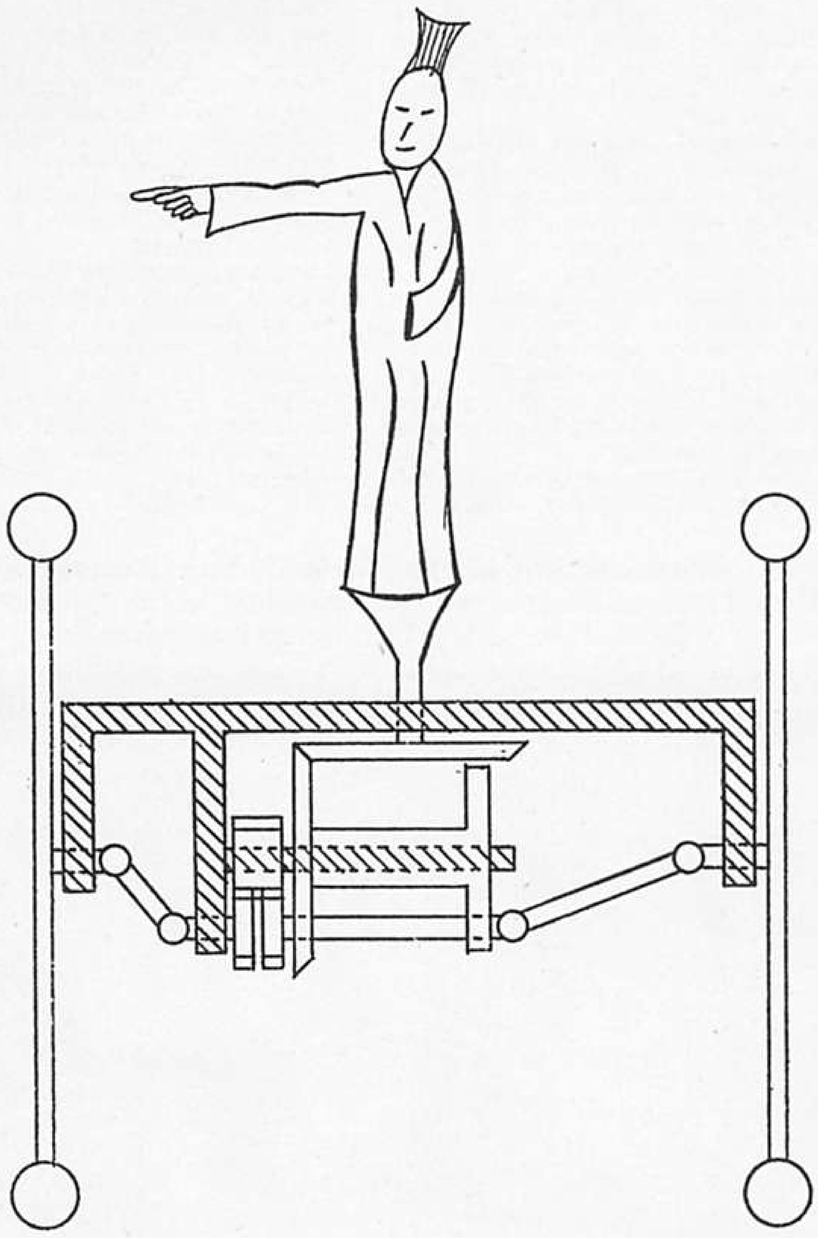


Fig. 3: a sketch of the Author's complete version of a South-Seeking Chinese Chariot



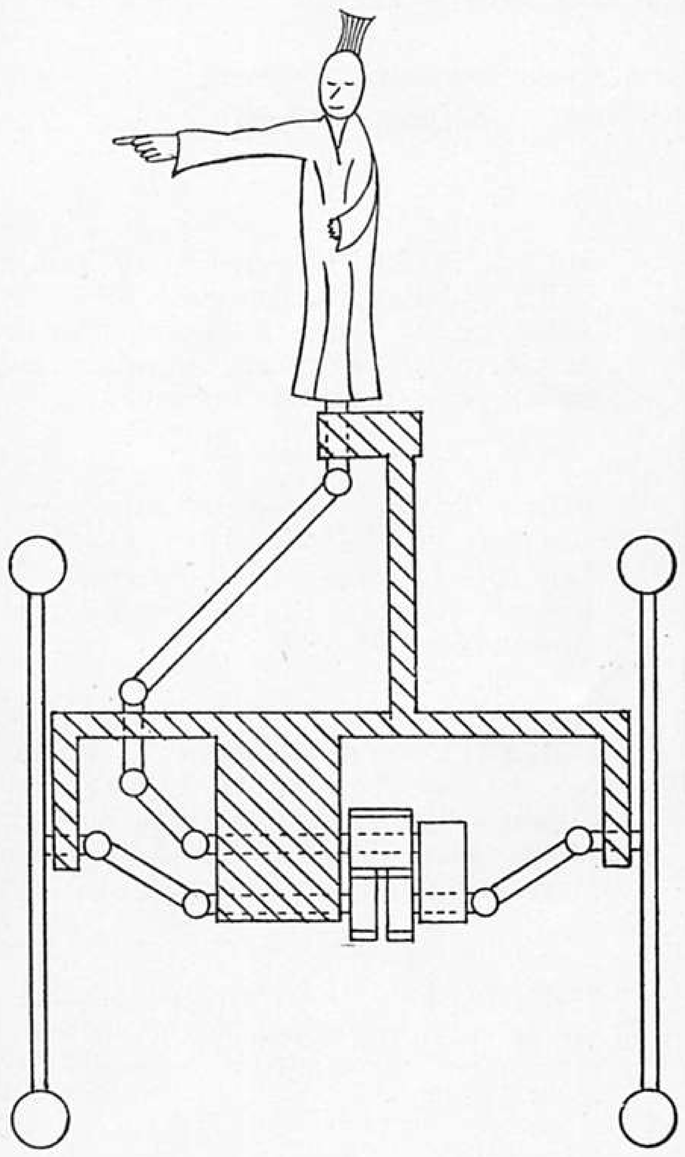


Fig. 4: a 3-gear version (incomplete) of the Chinese Chariot, this suggested by Prof. Sleeswyk of Groningen, Holland

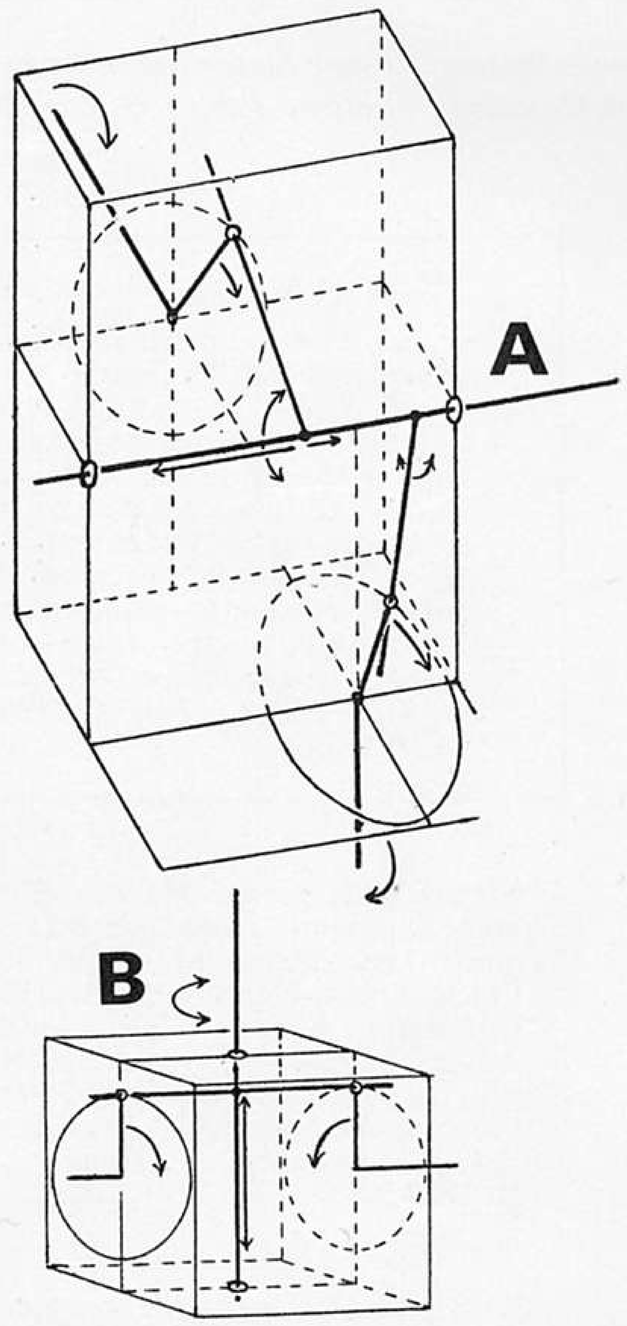


Fig. 5: variations on Coupling Rod Mechanism with no dead centre.
A = Skew Shafts; B = Shafts in line with reversal; C = Drive to multiple dials at 60 degree separations

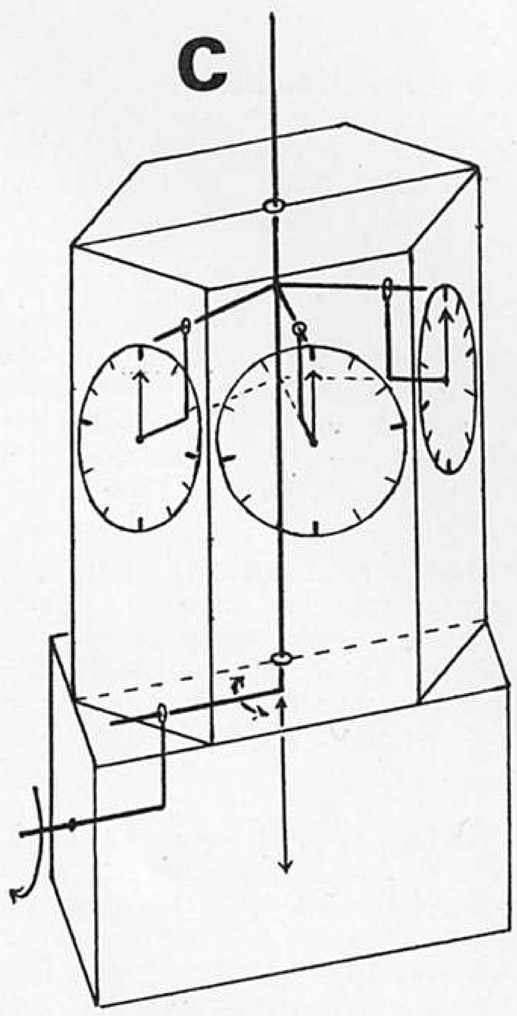


Fig. 9 below: the winning Chinese Chariot from Mr. Noel C. Ta'Bois.

Fig. 6: a suggested Differential Mechanism which makes use of two gears only.

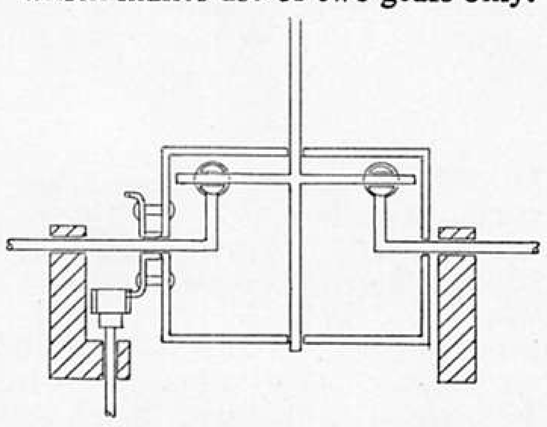


Fig. 7: a Chinese South-pointing Chariot Mechanism which uses no gears at all.

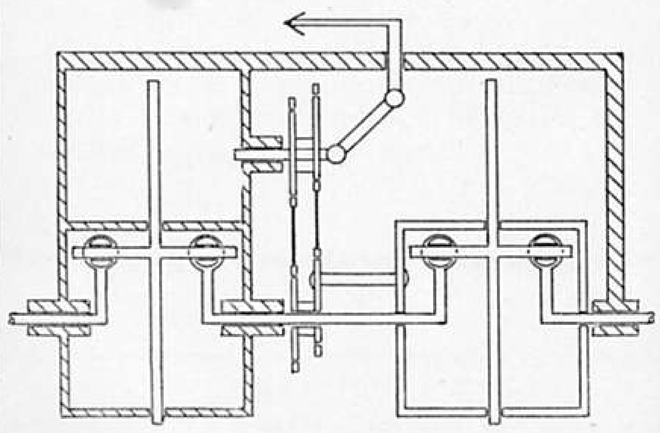
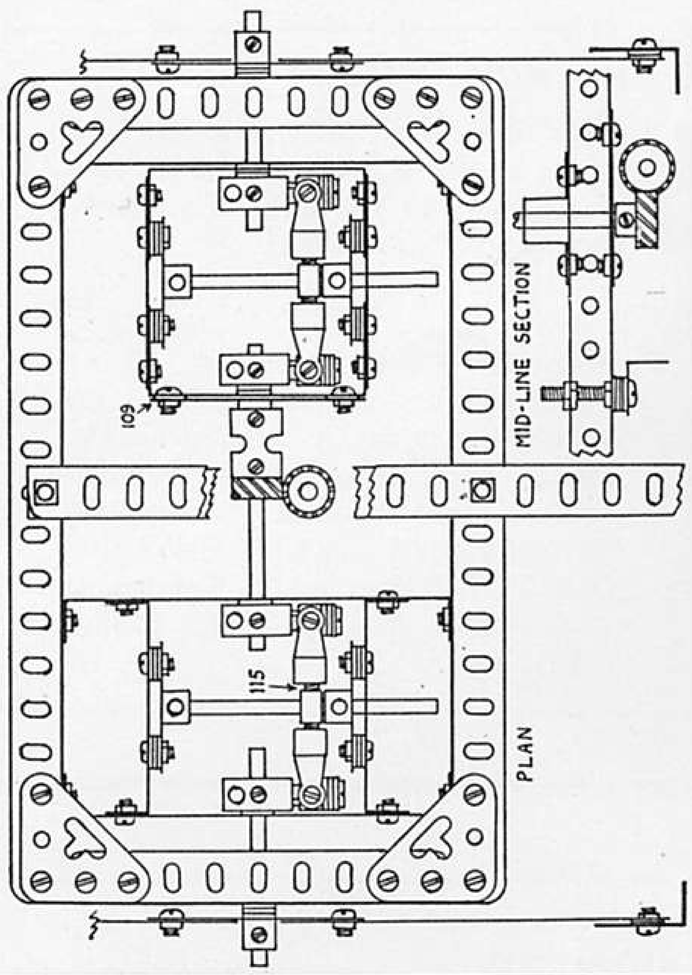


Fig. 8: a Chinese Chariot Mechanism using two years, re-drawn from Sr. R. G. Torrent's diagrams



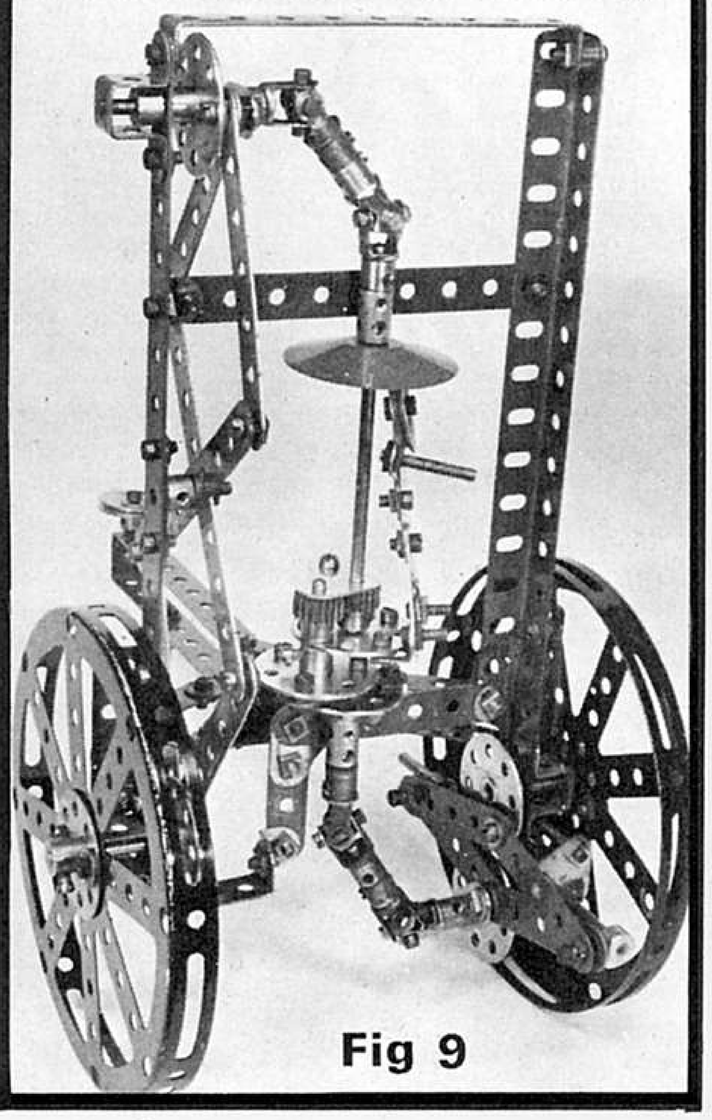


Fig 9

MECCANO MOUSE CONTEST

devised by Alan Partridge

A competition, which stood open for many years, to make a man-powered aeroplane was recently won by a very light, but large craft, appropriately named Gossamer Condor. The pilot drove the propeller by cycle pedals. To prove it was fully controllable, and not helped by wind, it had to fly a figure-of-eight course. Now what about making a Meccano Mouse which would run a figure-of-eight?

The problem is to make a model which, when suitably prepared, set down on a smooth surface, and released, will move along a figure-of-eight course and return to the starting point. The model is to consist entirely of standard (not plastic) Meccano. Any clockwork or electric motor sold by Meccano Limited in the last ten years may be used if required. Any battery (non-Meccano) needed must be carried on the model, so that it moves without any external power supply or guidance.

The prize will go to the maker of the lightest model. Do not send the actual model, but send enough details for the Editor to be able to make a copy. State the all-up weight and this must include battery if used, but not winding key of clockwork motor if used. You haven't a great deal of time, so please get busy. Entries must reach us by 13th June 1978.

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WANTED: original Meccano Instructions Books pre-1950 for No. 9 and 10 Sets. Book of New Models, Prize Models, Standard Mechanisms, How to Use, etc. Andreas Konkoly, H-1137 Budapest. Katona J.u.28. HUNGARY.

NORTH WALES READERS

Mr. P. Greenhalgh of Rhyl is anxious to contact anyone in the North Wales area who may be interested in getting together to form a Meccano Club. Although so close to Liverpool, he says, the area seems to be "the outback" as far as Meccano is concerned! So anyone interested – and we hope there will be many – should contact Mr. Greenhalgh at "Hibernia" 4 Heol-y-Llys, Rhyl, Clwyd. LL18 4EE.

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Further details from:
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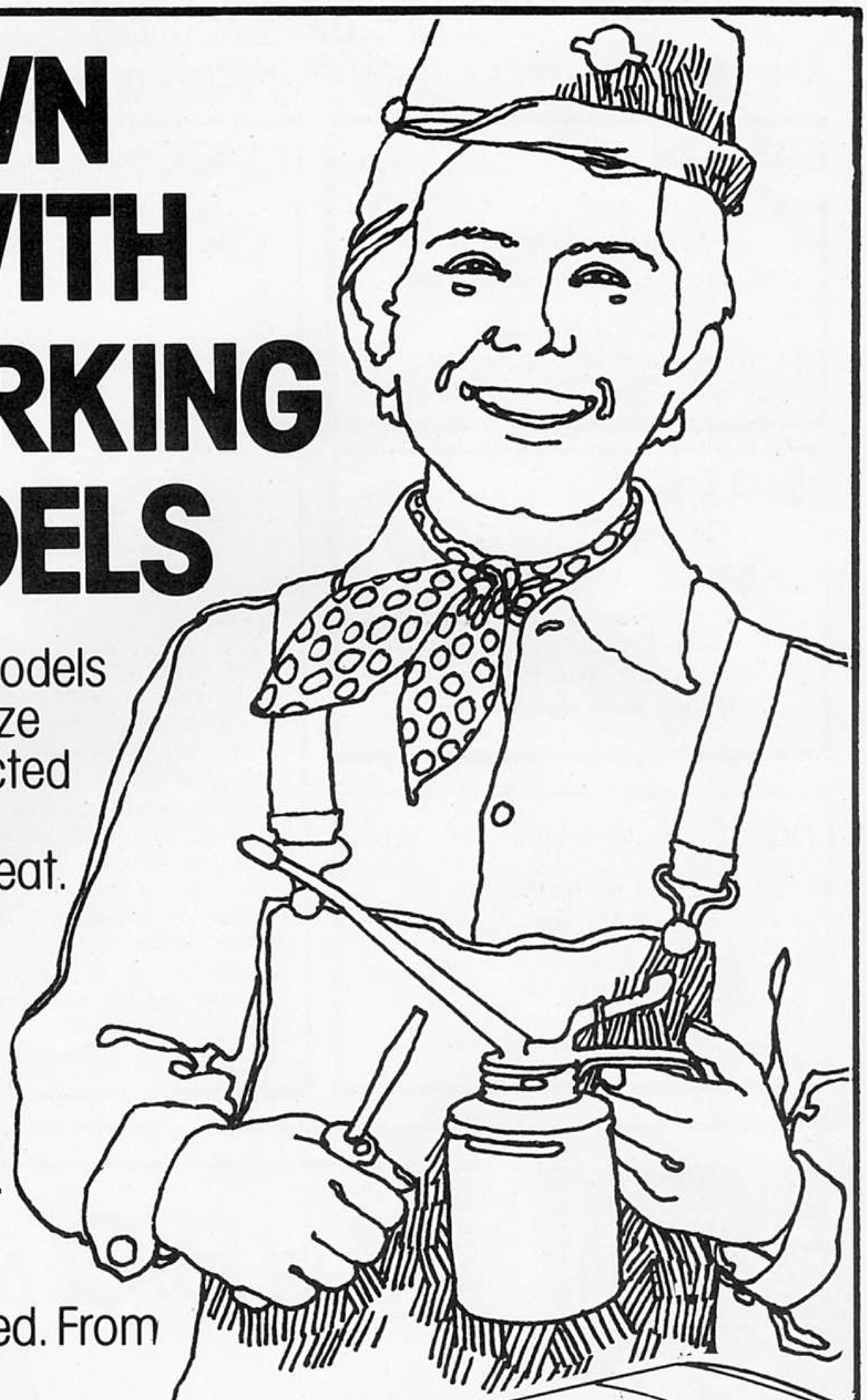
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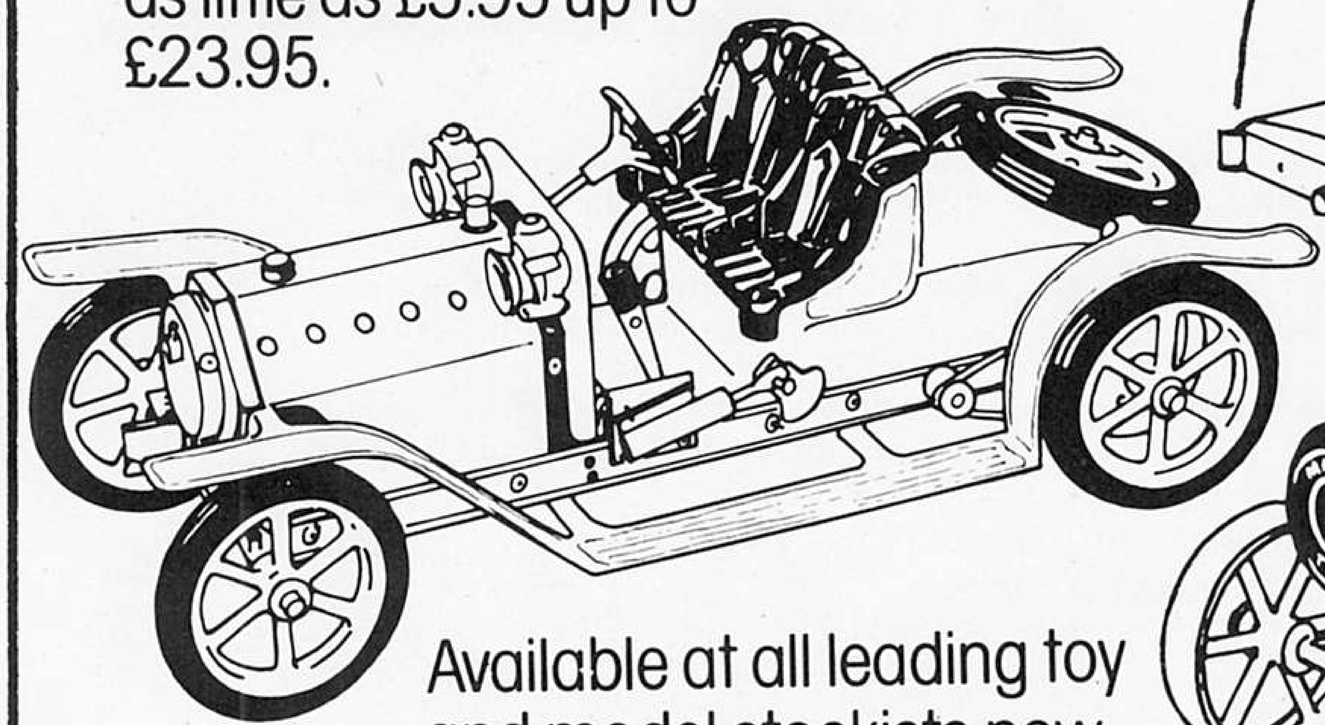


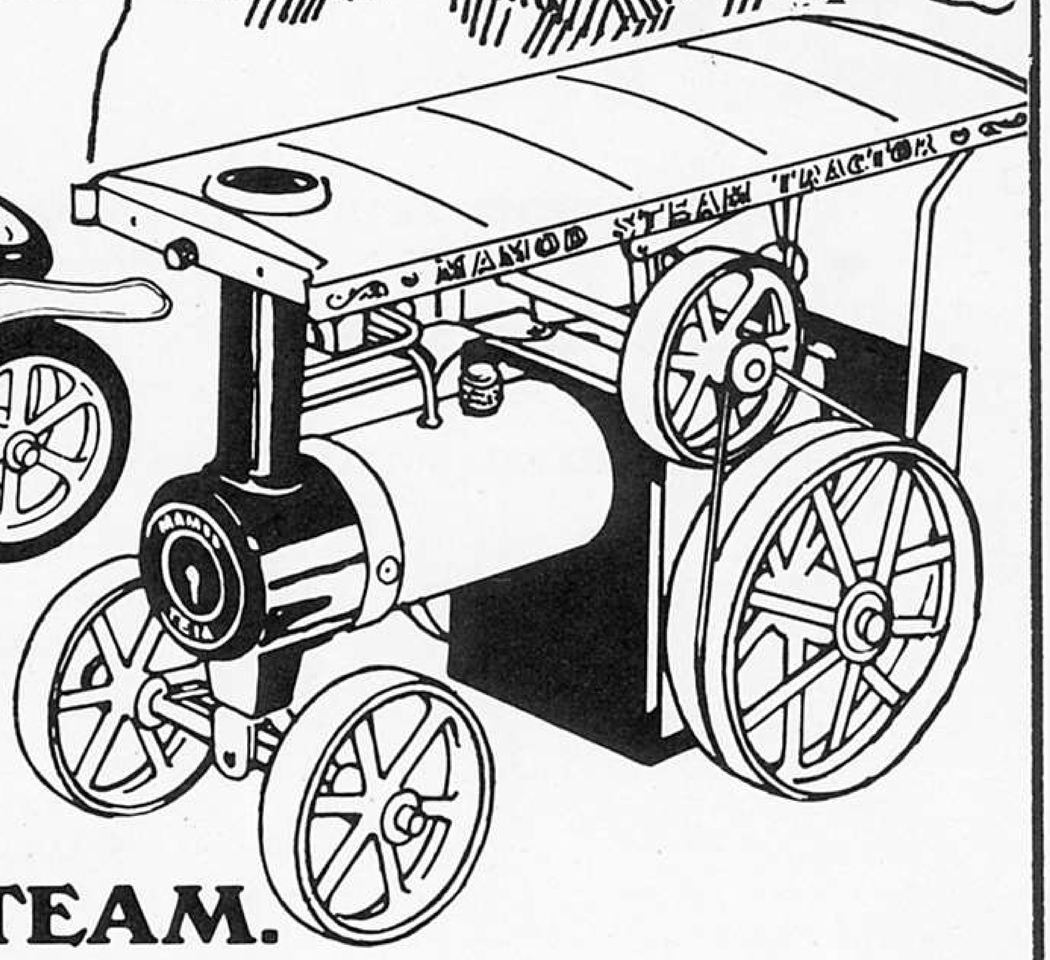
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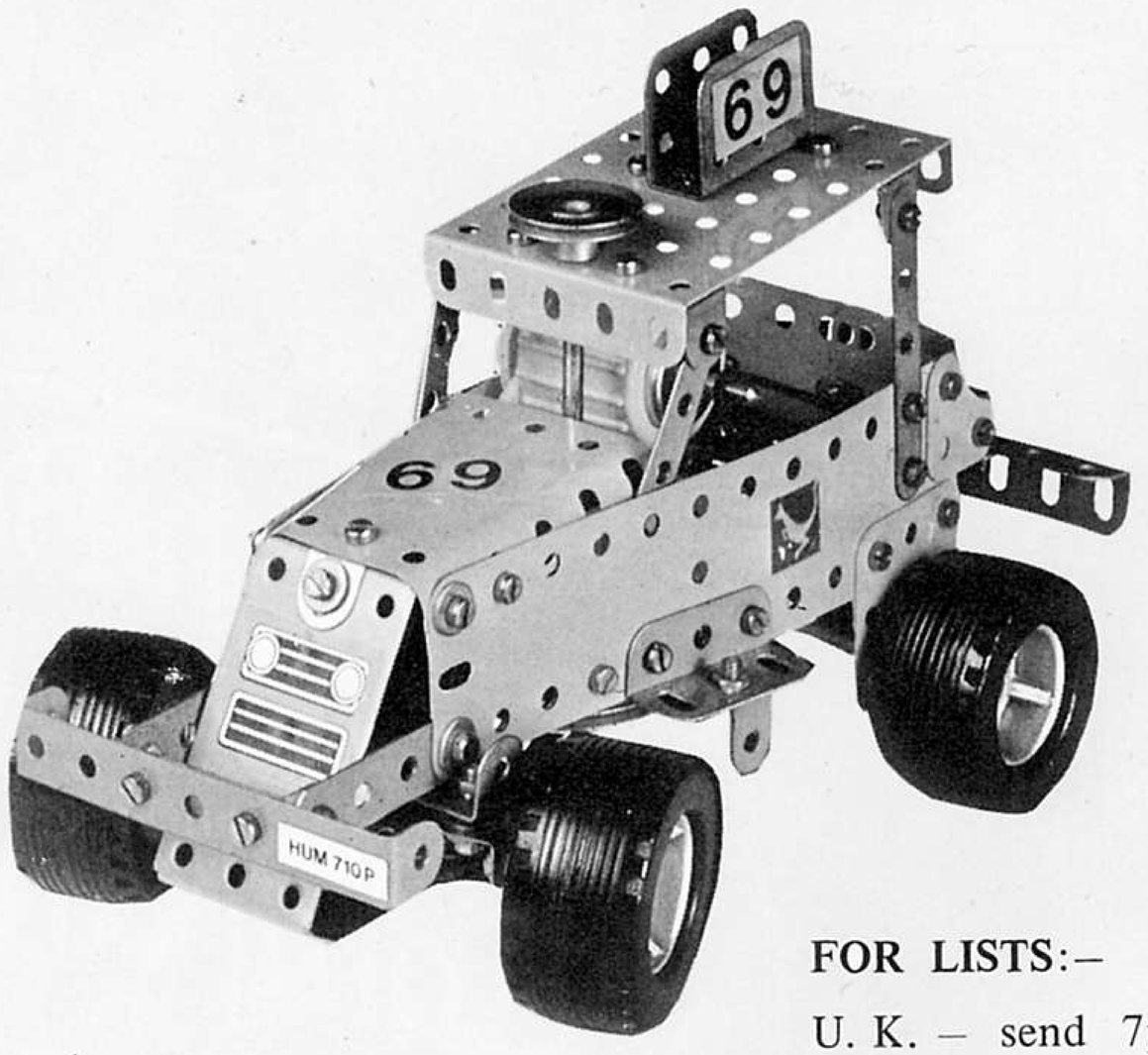
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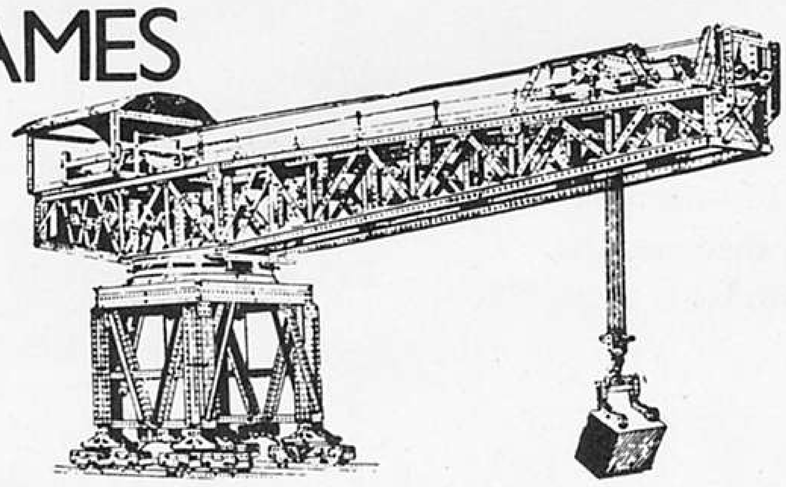
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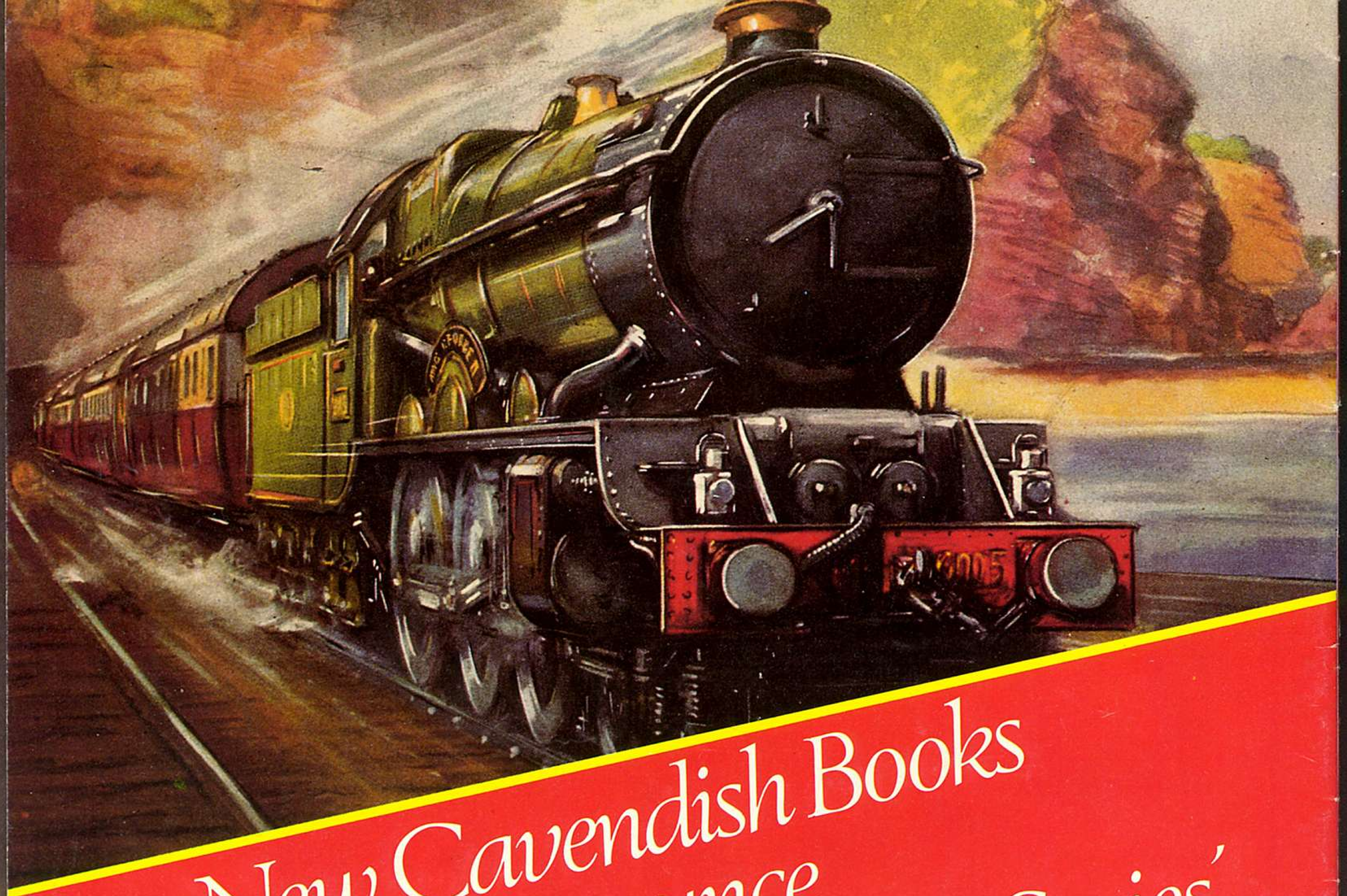
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The Hornby Companion Series: VOLUME 1
The Products of Binns Road – A General Survey – Peter Randall – ISBN 0 904568 06 7. 224 pp, 102 pages full colour, 209 x 292 mm landscape. To be published Spring 1977, at £12.50.

This will form the master Volume to the series and outlines virtually all the products issuing from the various Meccano factories. It includes, for the first time ever, full colour reproductions of the extremely rare Meccano Book of Products – 1934/35, together with a similar reproduction of the Hornby Book of Trains for 1938/39. A full colour extract from the 1939/40 book of trains is also included, dealing with the introduction of Hornby Dublo. In addition to an excellent text, touching on the development of virtually all Meccano's products, the book is profusely illustrated with over 170 black and white reproductions taken mainly from the original Company's literature. The book also includes an invaluable diary of commercial and industrial events.

VOLUME 2: The Meccano Super Models – Geoff Wright. ISBN 0 904568 07 5. Autumn 1977.

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